

Using Chicago's New Construction Codes

May 2019

Basics for the AEC Community



CITY OF CHICAGO
DEPARTMENT OF
BUILDINGS

Presenters:

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Course Description

This presentation will cover:

- ① Chicago's recent code modernization efforts
- ② Expected benefits of code modernization
- ③ Key dates for implementation of Phase 2
- ④ Key changes made by Phase 2 ordinance
- ⑤ Tentative plans for Phase 3

Learning Objectives

- 1** Chicago's consensus-based process for modernizing its construction codes with input from technical experts and industry stakeholders
- 2** Key dates for implementation of the Phase 2 ordinance, adopted in April 2019
- 3** Key changes included in the Phase 2 ordinance and how these changes will impact a variety of project types

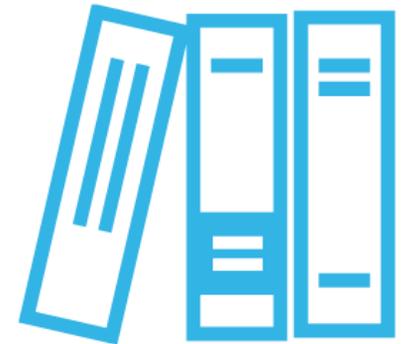
Introduction

Using Chicago's New Construction Codes



Goal

To better align the City of Chicago's construction requirements with up-to-date model codes and standards used in other major US jurisdictions while maintaining longstanding local requirements that are adapted to unique conditions in Chicago.

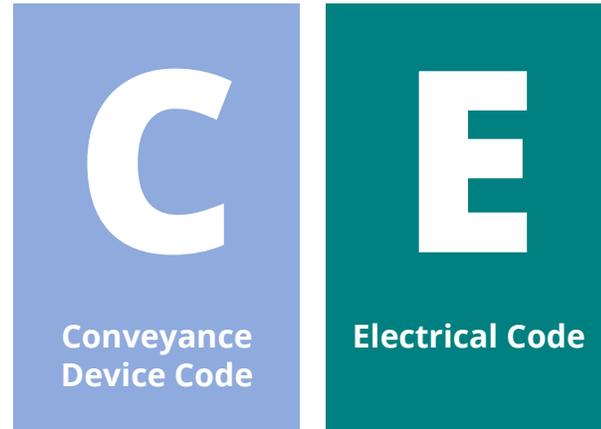


Targeted Outcomes

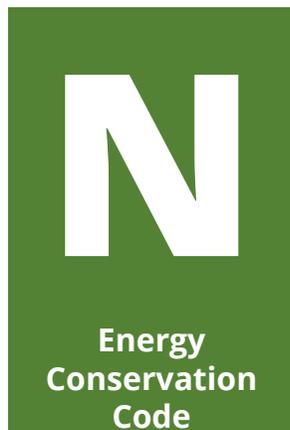
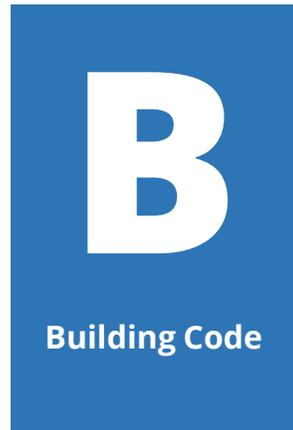
- ① Streamline permitting process
- ② Reduce barriers to cost-effective construction
- ③ Enhance public safety
- ④ Promote energy efficiency and sustainability
- ⑤ Facilitate innovative design and construction
- ⑥ Benefit from national code development efforts

**2015-2021
Code Modernization
Process**

Phase 1: 2015-2018



Phase 2: 2017-2020 *(based on 2018 I-Codes)*

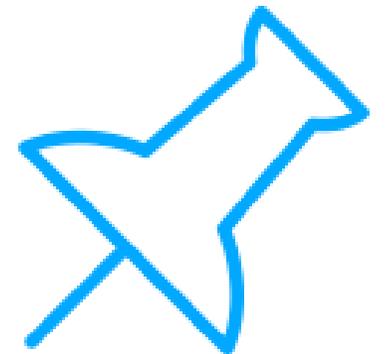


Phase 3: 2019-2021 *(based on 2018 I-Codes)*



Phase 3 topics

- Mechanical, plumbing, and natural gas
- Hazardous materials and special occupancies/operations regulated by CFD
- Smoke control systems (other than atriums)
- Stormwater, flood control, roof drains
- Energy code enhancements (EV-ready, solar-ready, zero code, etc.)
- Signs, trade licenses

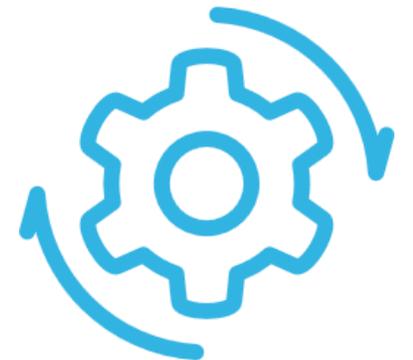


Chicago Construction Codes

A Administrative Provisions	B Building Code	C Conveyance Device Code	E Electrical Code	F Fire Prevention Code	G Fuel Gas Code	M Mechanical Code
N Energy Conservation Code	P Plumbing Code	R Rehabilitation Code	S Sign Code	T Trade Licensing Code	X Existing Building Code	

Continuous Process

The new construction codes will not be static requirements but a regulatory foundation that will make it easier for the City of Chicago to remain current with the latest building technologies and benefit from national code development efforts.

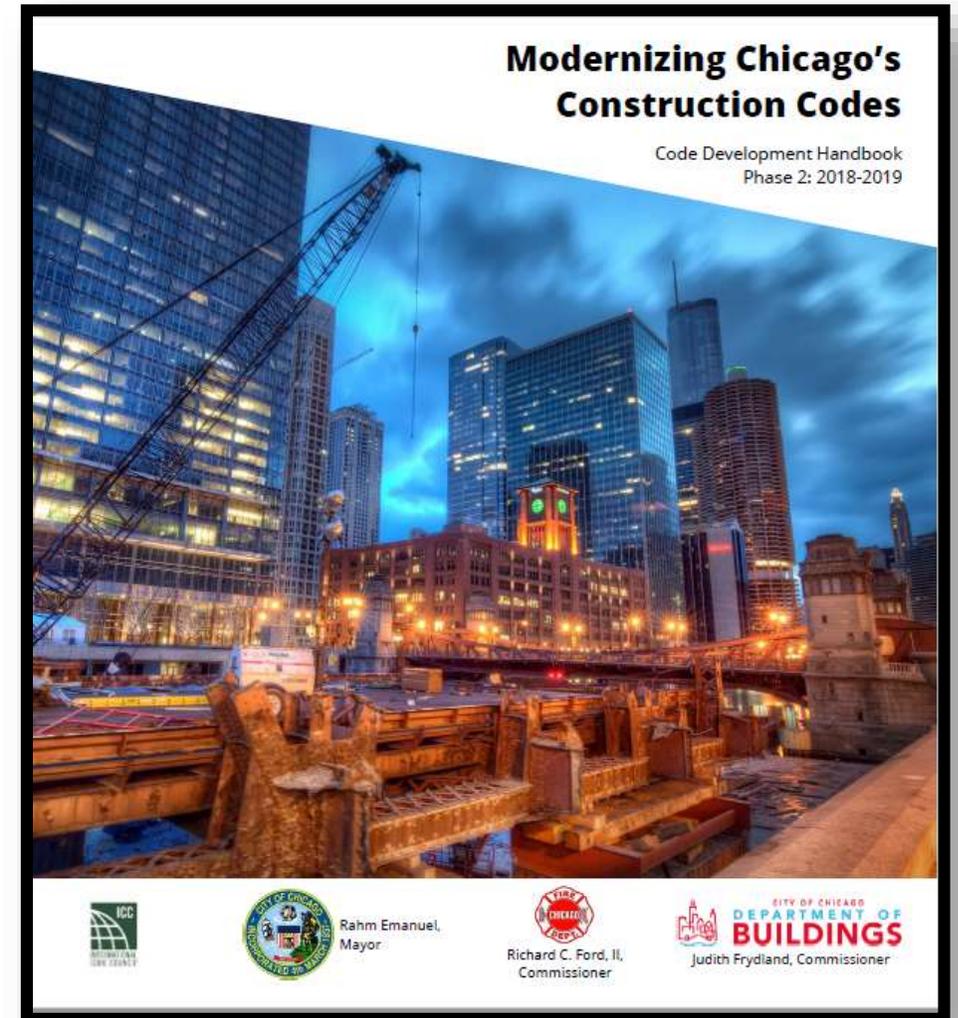


Using Chicago's New Construction Codes



Handbook

- Establish shared expectations
- Create framework for review
- Set timeline for input process



Technical Review

- 3-month review of provisions drafted by DOB/CFD
- Monthly meeting of stakeholders
- Weekly meeting of 6 technical working groups:
 - Building Planning
 - Enclosure & Materials
 - Existing Buildings
 - Fire Protection & Life Safety
 - Small Residential
 - Structural



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December 2018 – March 2019

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First Stakeholder Meeting - December 2018

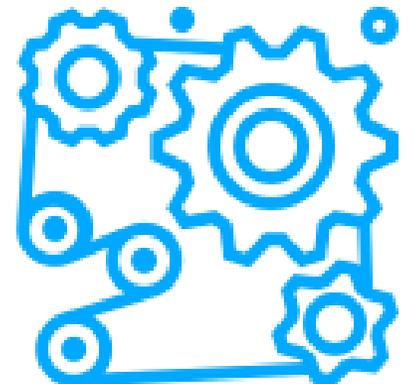
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April 10, 2019

Phase 2 Implementation

- Energy Code effective **June 1, 2019**
- Administrative Provisions effective **July 1, 2019**
- Code published by ICC, **mid-October 2019**
- Invitation-only test projects, fall 2019
- Optional use of new code for permit applications, **December 1, 2019**
- Minimum standards, Spring 2020
- New code mandatory: **August 1, 2020**

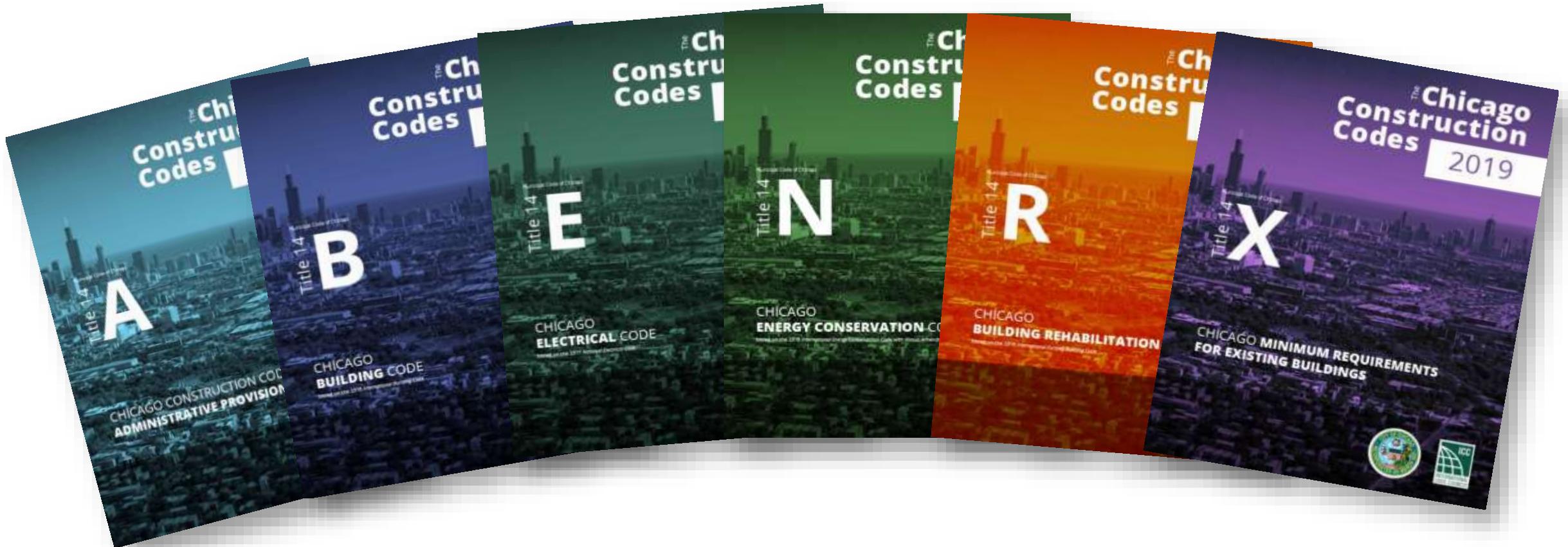


Training

- Training by DOB and industry partners
- DOB internal training Sept. 2019–Aug. 2020
- Self-cert training and update, December 2019
- Structural peer reviewer training, late 2019
- Phase 3 process begins late 2019



Publication: October 2019



Key Changes

In this Presentation

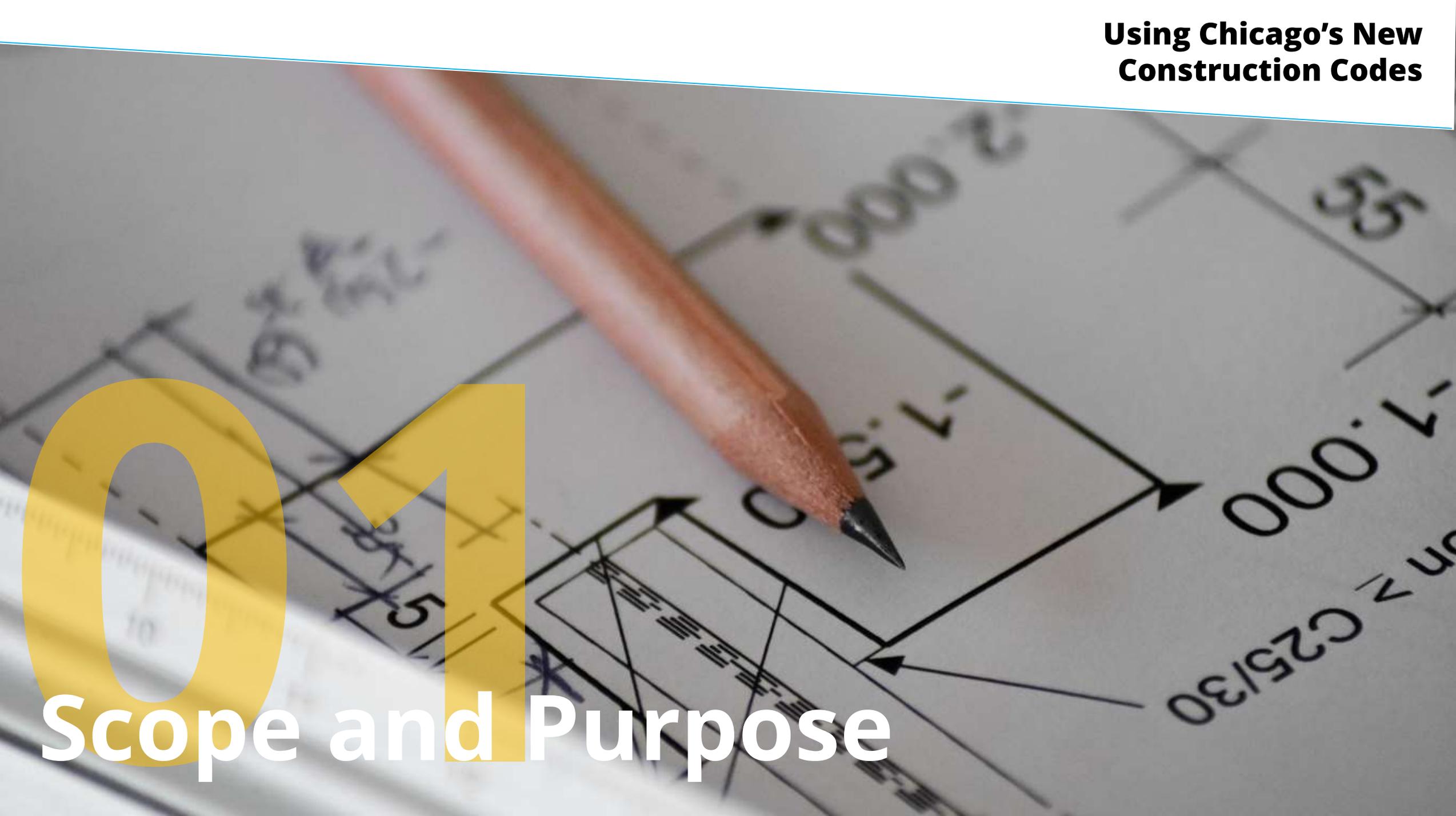
- *Italic text* indicates a defined term (just like in the I-Codes)
- **Blue text** refers to the Chicago ordinance
- ***Blue italic text*** indicates a term defined in the Chicago ordinance





Warning

Building Code \neq Zoning Ordinance

A close-up photograph of an architectural drawing on a light-colored paper. A wooden pencil with a black eraser tip is positioned diagonally across the drawing. A white ruler is visible at the bottom left. The drawing features various lines, arrows, and handwritten annotations in black ink. The background is slightly blurred, emphasizing the pencil and ruler.

01

Scope and Purpose

Chicago-specific

A

Administrative Provisions

Procedural rules for permit applications, inspections, enforcement, department operations (including fees) [\(p. 2\)](#)

IBC-based

B

Building Code

Substantive requirements for new construction and new work (also special inspections and tests and work site safety) [\(p. 161\)](#)

IEBC-based

R

Rehabilitation Code

Scoping provisions and special rules for *rehabilitation* work in existing buildings (repairs, alterations, additions, moved buildings) [\(p. 611\)](#)

Navigating Title 14A - Administrative Provisions

Ch. 1 Scope and Application (p. 2)

Ch. 2. Definitions (p. 13)

Ch. 4. Permits (p. 33)

Ch. 5. Permit-related inspections (p. 65)

Ch. 7. Pre-occupancy requirements (p. 75)

Ch. 8. Posting requirements (p. 77)

Ch. 10. Approvals and appeals (p. 80)

Ch. 12. Schedules (all \$ amounts for fees, fines) (p. 86)

02 Definitions and Measurements

Navigating Chapter 2 - Definitions

201. General (rules on definitions) (p. 163)

202. Definitions (p. 163)

203. Measurements (p. 187)

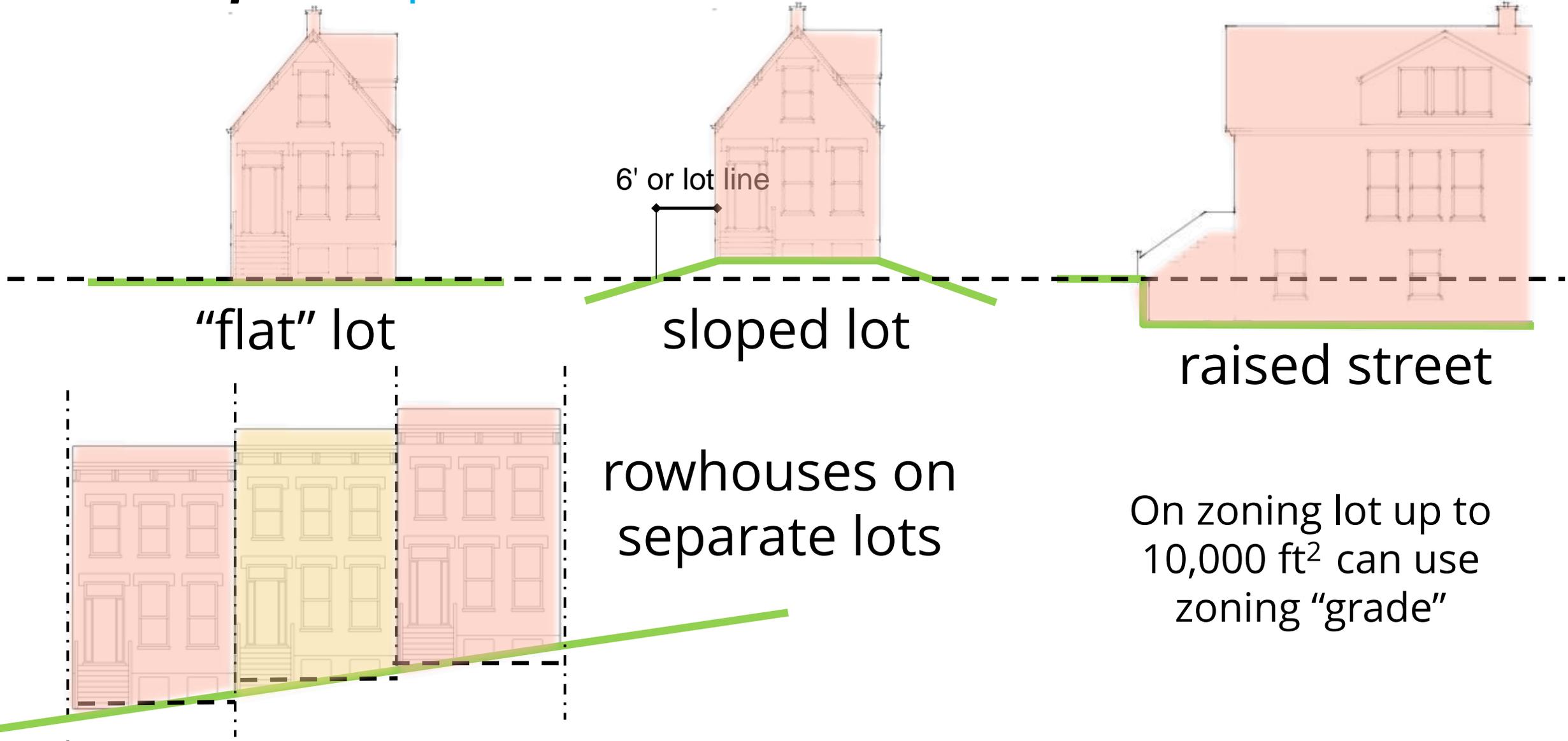
Note: Some definitions are cross-referenced between codes instead of being repeated in each code.

Chicago-specific Highlights - Definitions

- *"Approved"* means approval outside the normal permitting process: ACAR, S&T, BBA
- *"Building official"* means the Building Commissioner or designee
- *"Deck"*, *"exterior balcony"* and *"porch"* defined
- *"Fire separation distance"* slightly different than IBC
- *"Occupiable rooftop"* defined (requirements in Ch. 15)
- *"Telecommunications equipment area"* replaces *"technology center"*

**Using Chicago's New
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Grade plane (p.187)



Building height (pp.187-88)

Building height shall be the vertical distance from *grade plane* to the mean elevation of the highest roof plane.

≠ *mean roof height* (structural) ≠ zoning height

Ex. 1. *Occupiable rooftop*

Ex. 2. parapet > 42"

Exs. 3, 4. Exclude unoccupied *rooftop structures* and rooftop access *penthouses* (see ch. 15)

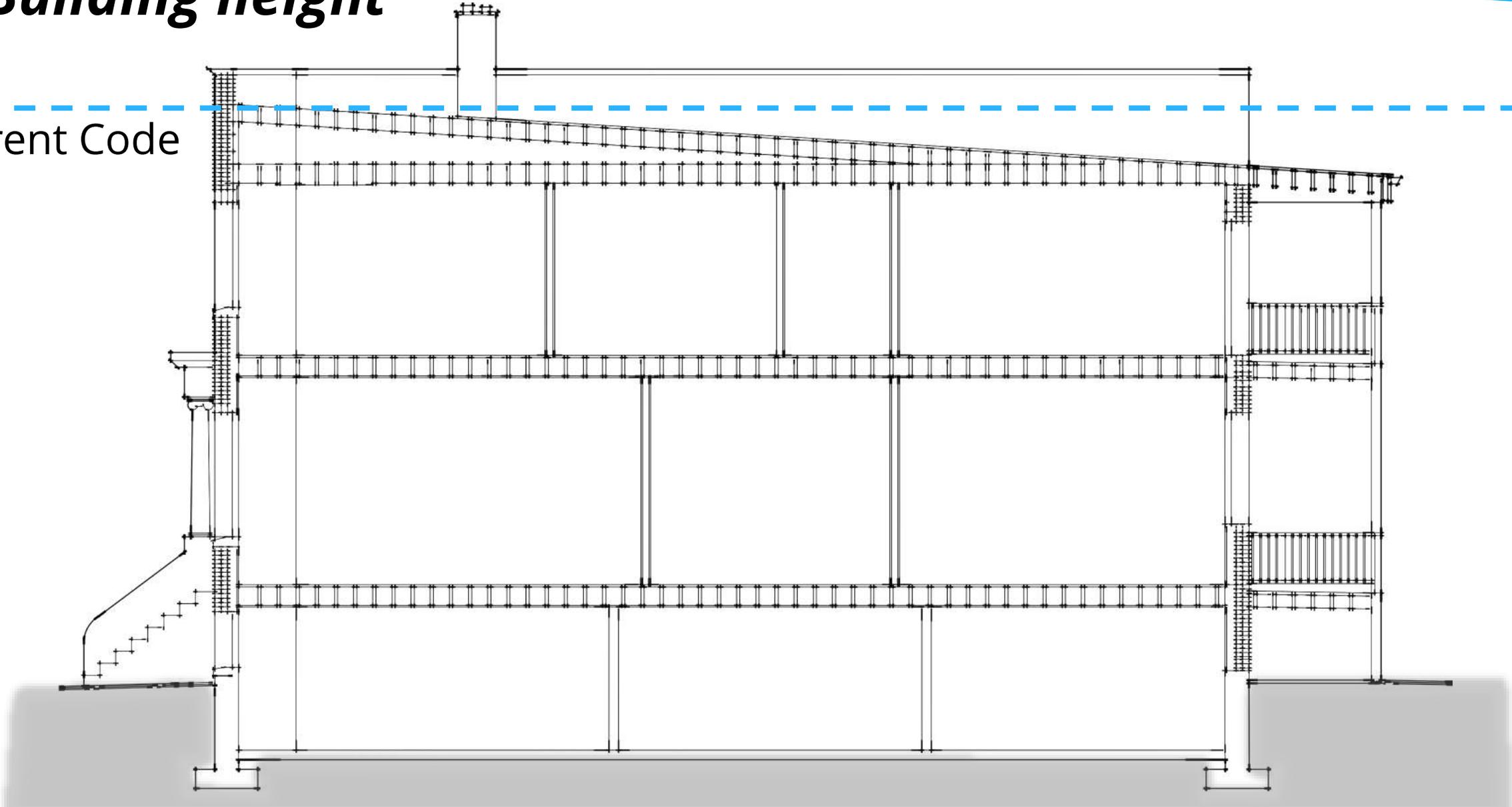
Ex. 5. Certain dormers

Ex. 6. Complex roofs

Ex. 7. Ignore up to 12" of CI above structural *roof deck*.

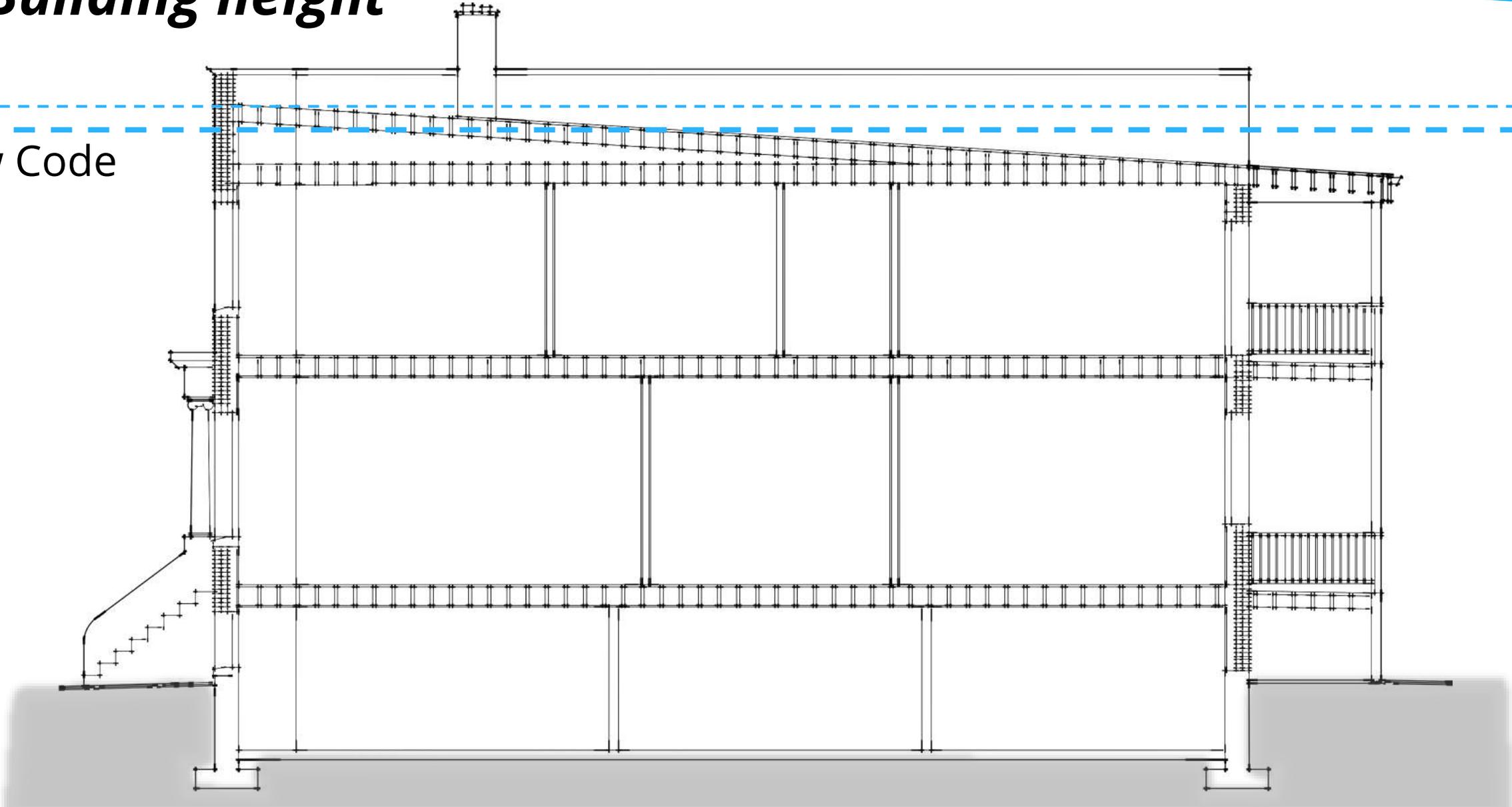
Building height

Current Code



Building height

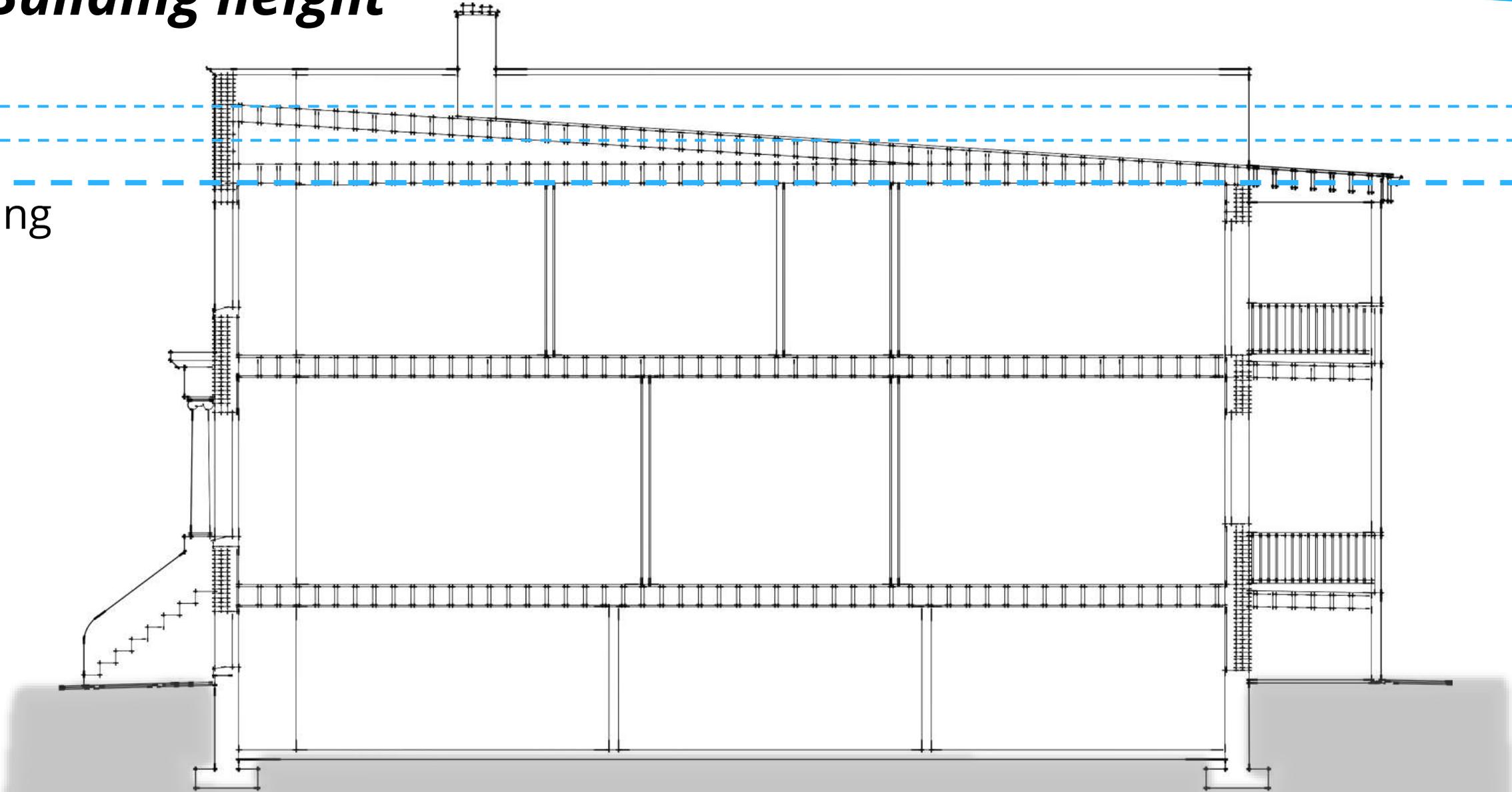
New Code



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Building height

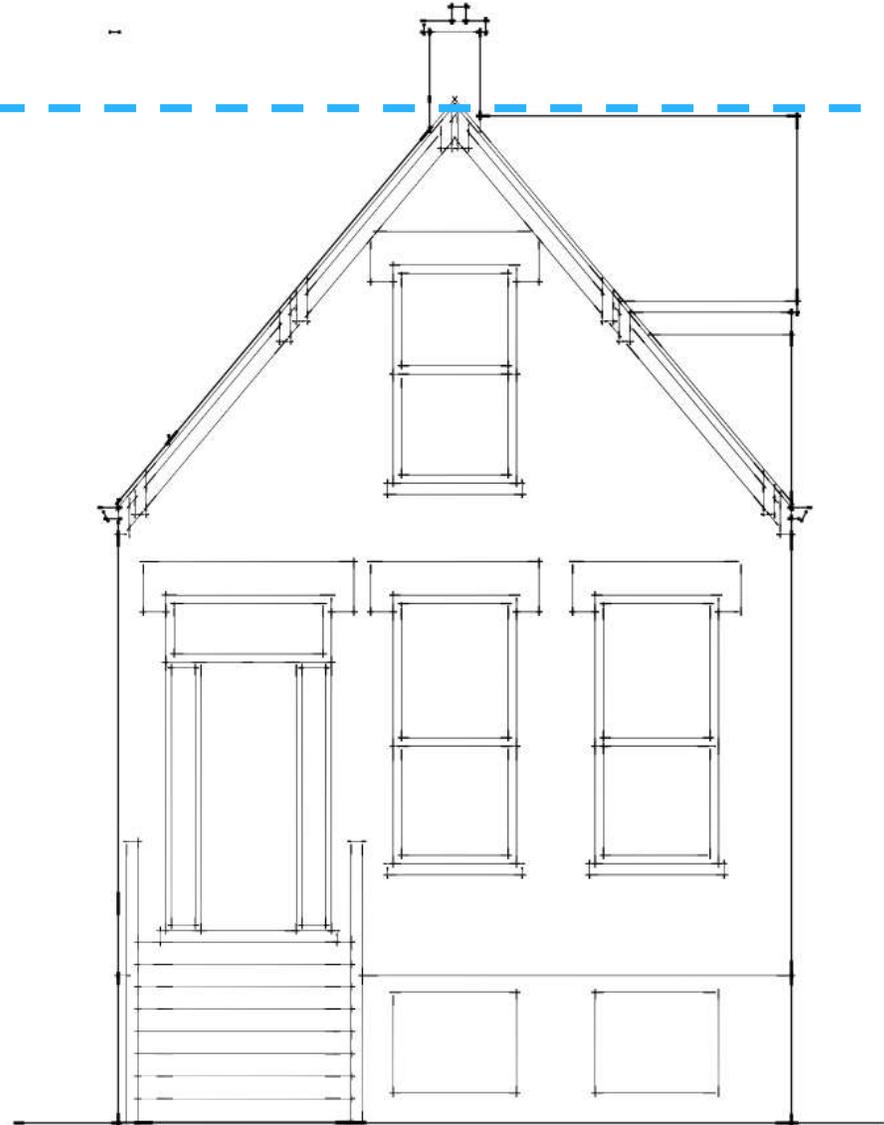
Zoning



Building height

Current Code

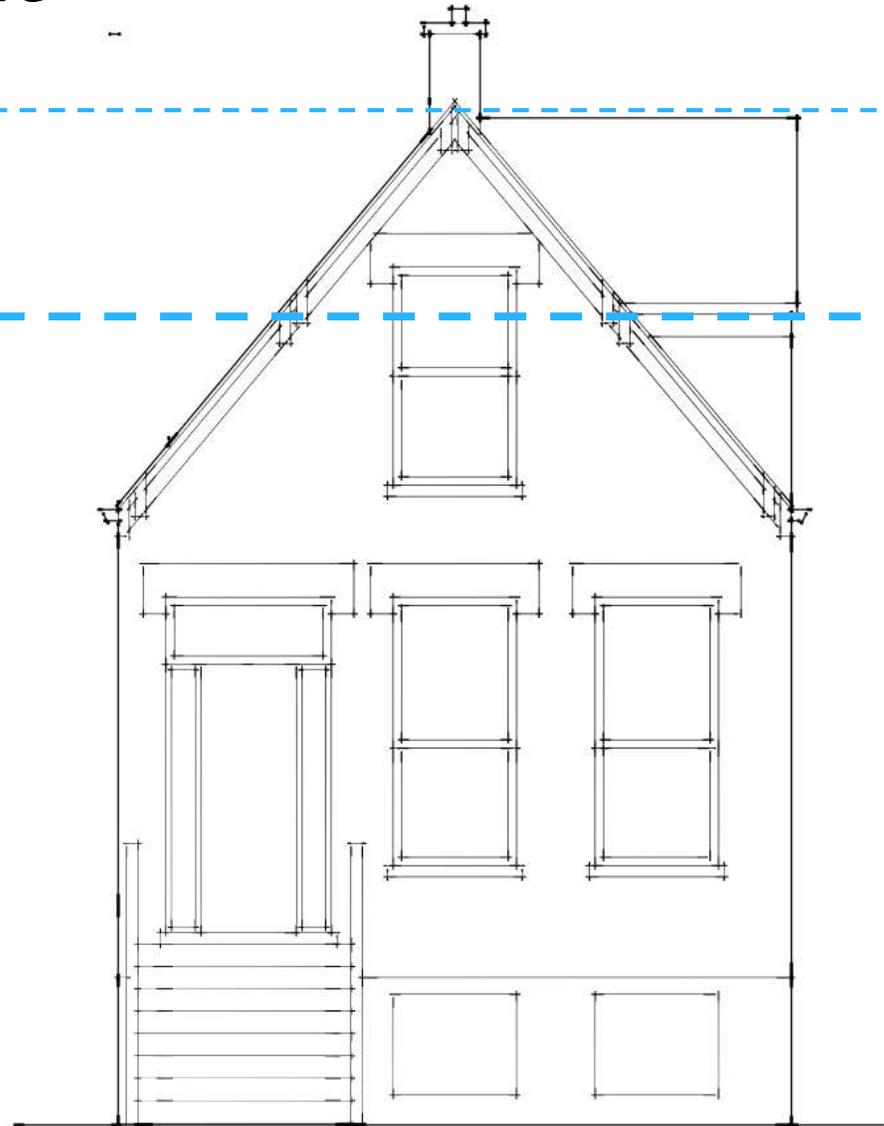
highest point



Building height

New Code

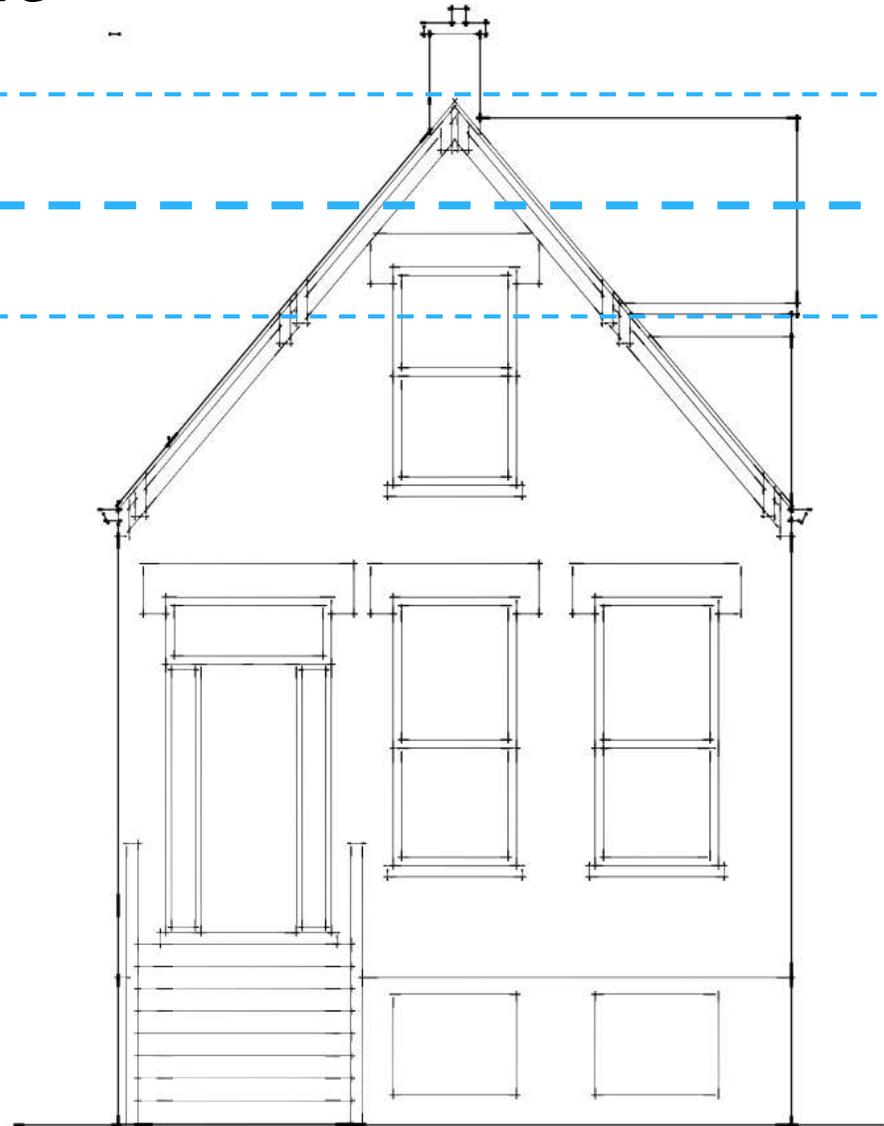
If dormer meets
exception 5.



Building height

Zoning

No exception for
dormers.

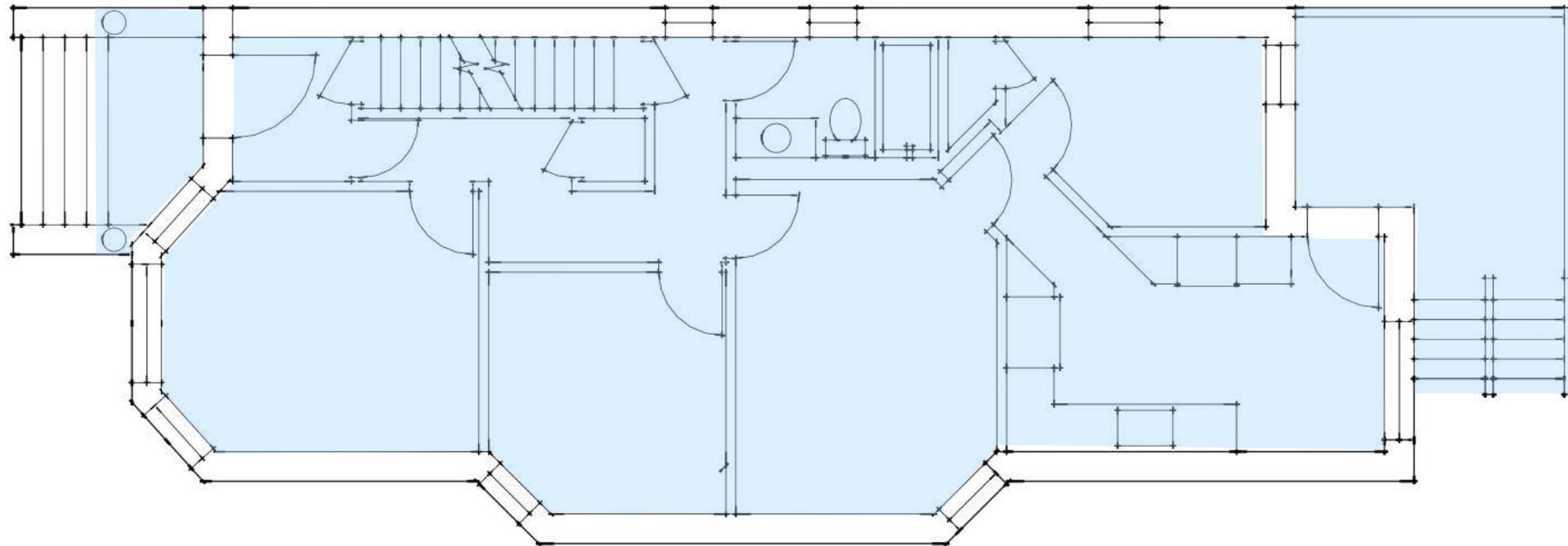


Building area

Zoning includes thickness of exterior walls. (Zoning has other exclusions.)

Building code excludes thickness of exterior walls.

New building code includes covered porches, balconies, etc.



Stories (are complicated)

Attic (Definition: [p. 165](#))

Basement (Definition: [p. 166](#))

Loft (Definition: [p. 177](#) / Rules: [Sec. 1207.5, p. 353](#))

Mezzanine (Definition: IBC / Rules: Sec. 505, [p. 221](#))

Penthouse (Definition: [p. 171](#) / Rules: Sec. 1510/1513)

Story (Definition: [p. 184](#))

Story above grade plane (Definition: [p. 185](#))

A large crowd of people is shown from behind, with their arms raised in the air. The scene is filled with falling confetti, creating a celebratory atmosphere. The entire image has a strong blue color cast. A large, semi-transparent number '03' is overlaid on the left side of the image.

03
**Occupancy
Classification and Use**

Navigating Chapter 3 – Occupancy Classification

301. General (p. 190)

302. Occupancy classification and use designation (p. 190)

303-311. Specific occupancy groups A to S (pp. 191-197)

312. Utility and miscellaneous (Group U) (p. 197)

A. Assembly (303) (C1/C2)

B. Business (304) (E)

E. Educational (305) (C3)

F. Factory/Industrial (306) (G)

H. High-hazard (307) (I)

I. Institutional (308) (B)

M. Mercantile (309) (F)

R. Residential (310) (A)

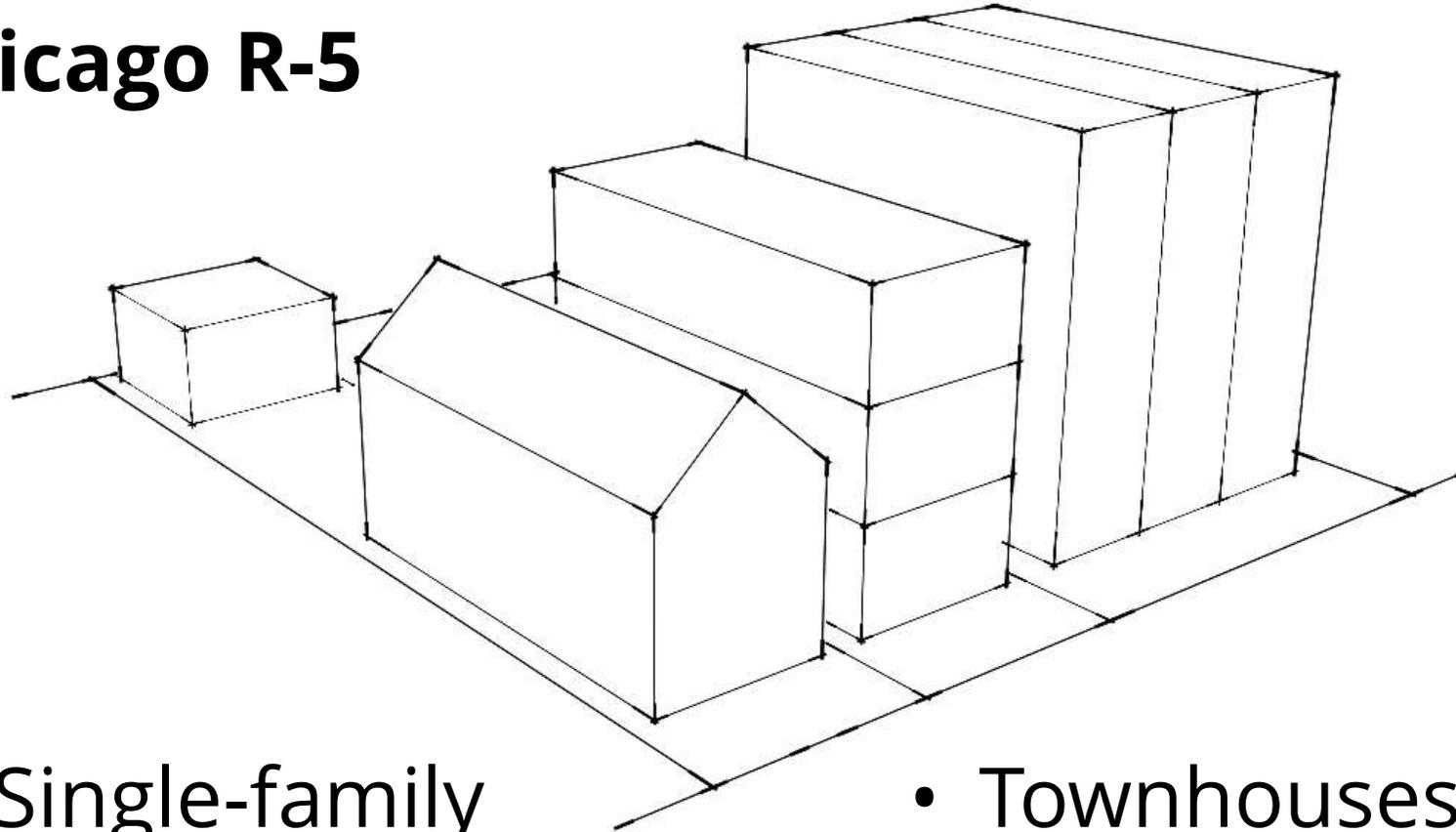
S. Storage (311) (H)

U. Utility/Miscellaneous
(312) (J)

Chicago-specific Highlights - Occupancy Classification

- New subgroup E-2 for child daycare (p. 192)
- New subgroup R-5 for 1-3 unit non-transient residential building up to 4 stories (p. 196)
- Low-hazard factory (F-2) (p.193) and low-hazard storage (S-2) (other than parking) (pp. 196-97) requires written approval of CFD
- *Telecommunication equipment area* replaces CBC "Technology center" and can be either B or S-1

Chicago R-5



- Single-family
- Two-flats
- Three-flats
- Townhouses (up to 3)
- Associated private garages
- 4 stories max.

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**Special Detailed Requirements
Based on Use and Occupancy**

Navigating Chapter 4 – Special Requirements

401. Scope (p. 198)

403. High-rise buildings (p. 198)

404. Atriums (p. 201)

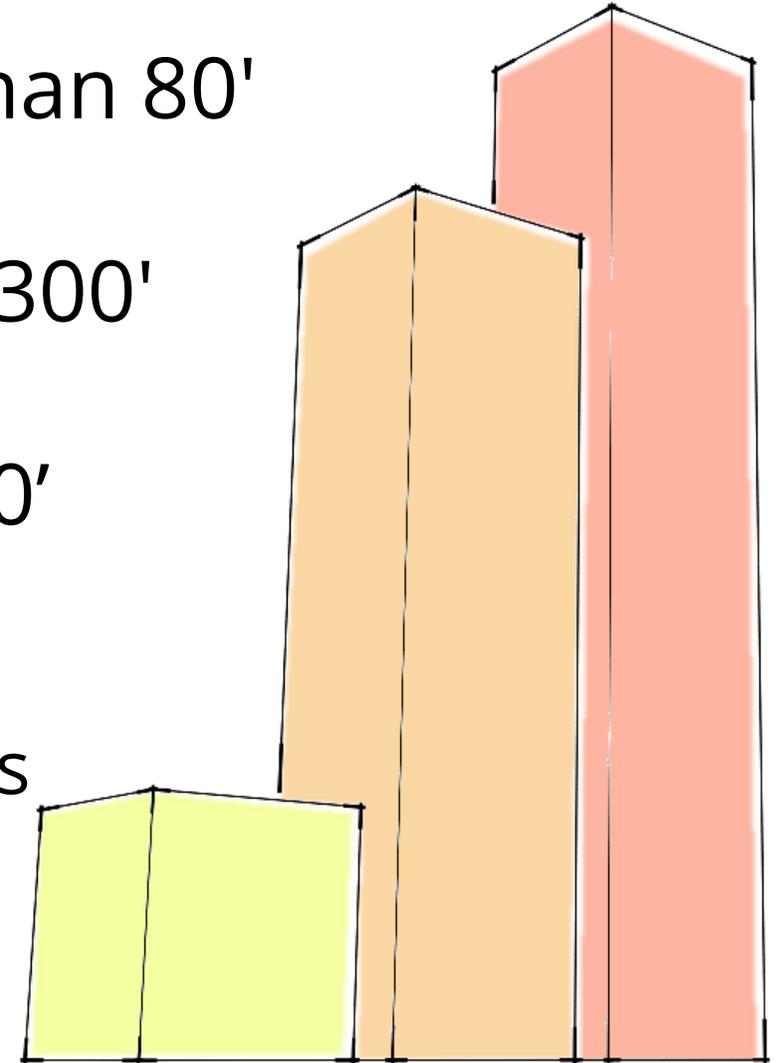
406. Motor-vehicle-related occupancies (p. 203)

420. Group I-1, R-1, R-2, R-3, R-4 and R-5 (p. 211)

Also: Underground buildings, Groups I-2 and I-3, theater-related, special amusement, aircraft-related, live/work, ambulatory care

403. High-rise buildings

- *High-rise building* defined as greater than 80' in *building height*
- Two-source water supply required at 300'
- Additional structural and operational integrity requirements required at 400'
 - no reductions to Type IA construction
 - 2 hr rating for shafts greater than 9 ft²
 - Impact rating for stair and elevator shafts
 - Enhanced bond for spray fireproofing
 - Special wind study required (Ch. 16)
 - Diesel generator required (14E-700)



406. Motor-vehicle-related occupancies

- *Private garages and carports* (up to 6 vehicles)
 - Similar to 2017 requirements
- Public parking garages
 - *Open parking garages*
 - Enclosed parking garages
- Motor fuel-dispensing facilities
- *Repair garages*
- *Parking facilities* (limited mixed occupancy)

A photograph of the Chicago skyline at sunset. The sky is a mix of orange, red, and yellow, with scattered clouds. The silhouettes of several skyscrapers are visible against the bright sky. The most prominent building is the Willis Tower, which is the tallest and most central. To its right, another tall building is visible. In the foreground, the tops of other buildings are visible. A large, semi-transparent number '05' is overlaid on the left side of the image, partially covering the buildings.

05
**General Building
Heights and Areas**

Navigating Chapter 5 - Height and Area

501. General ([p. 214](#))

503. General Height and Area Limitations ([p. 214](#))

504. Building Height and Number of Stories ([p. 215](#))

505. Mezzanines and Equipment Platforms ([p. 221](#))

506. Building Area ([p. 222](#))

508. Mixed Use and Occupancy ([p. 229](#))

509. Incidental Uses ([p. 232](#))

New from IBC – Height and Area

- Recognition of non-separated mixed occupancies
- Clearer requirements for height and area of separated mixed occupancies
- Clearer requirements for separation of incidental uses

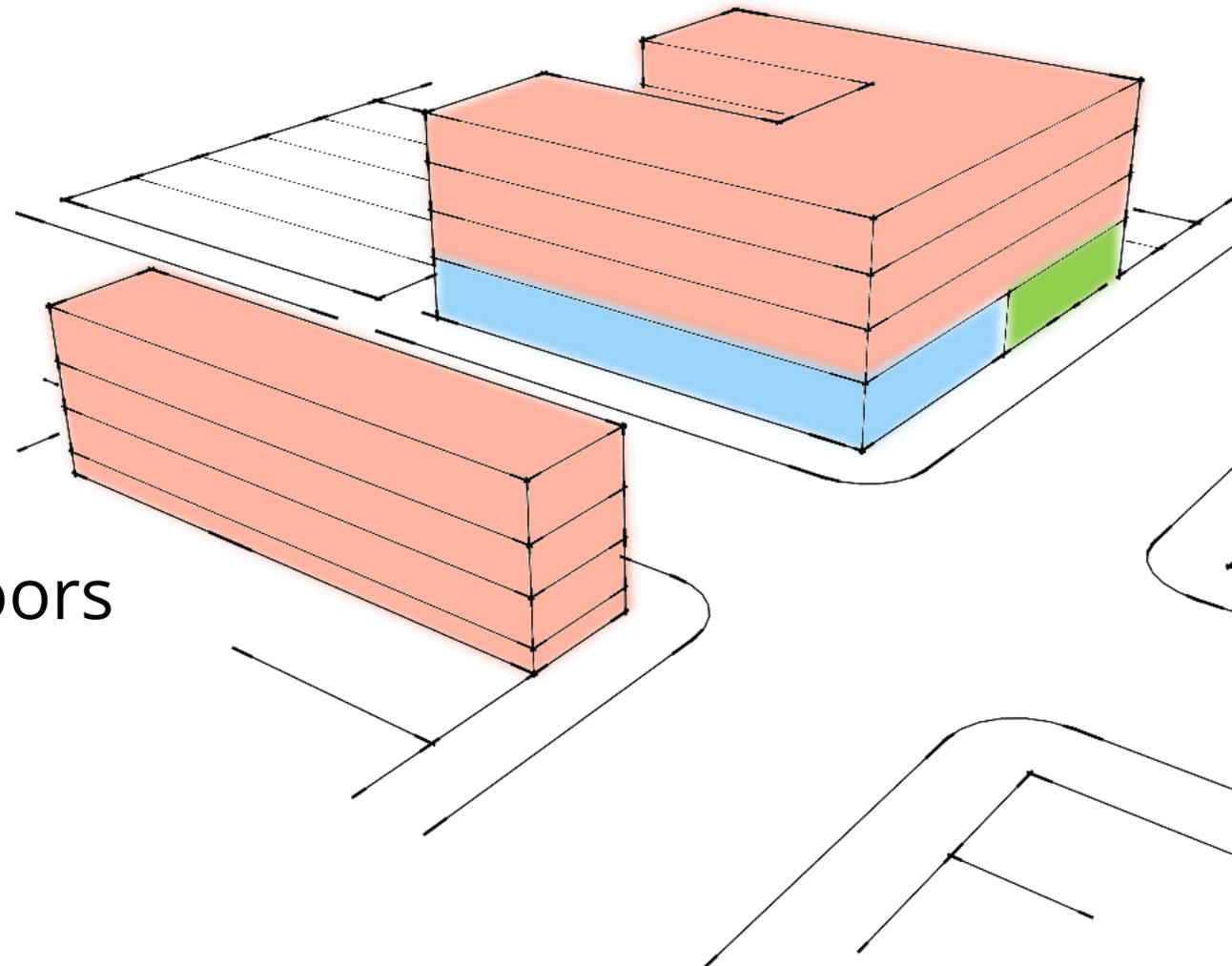
Chicago-specific Highlights - Height and Area

- Heights and areas similar to current code for buildings without sprinkler system
- Greater increase (stories and area) for full sprinkler system
- Less generous increase than current code for frontage
- No credit for mixed-construction "podium" buildings



Example: Protected Frame Construction (V-A)

- Old code limited to 3-unit 3-story residential
- New code allows 4-story mixed use
 - Sprinkler system
 - Non residential on lower floors
 - May require FRTW for walls close to property line



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06 Types of Construction

Navigating Chapter 6 – Construction Types

601. General (p. 235)

602. Construction classification (p. 236)

603. Combustible materials in Types I and II (p. 237)

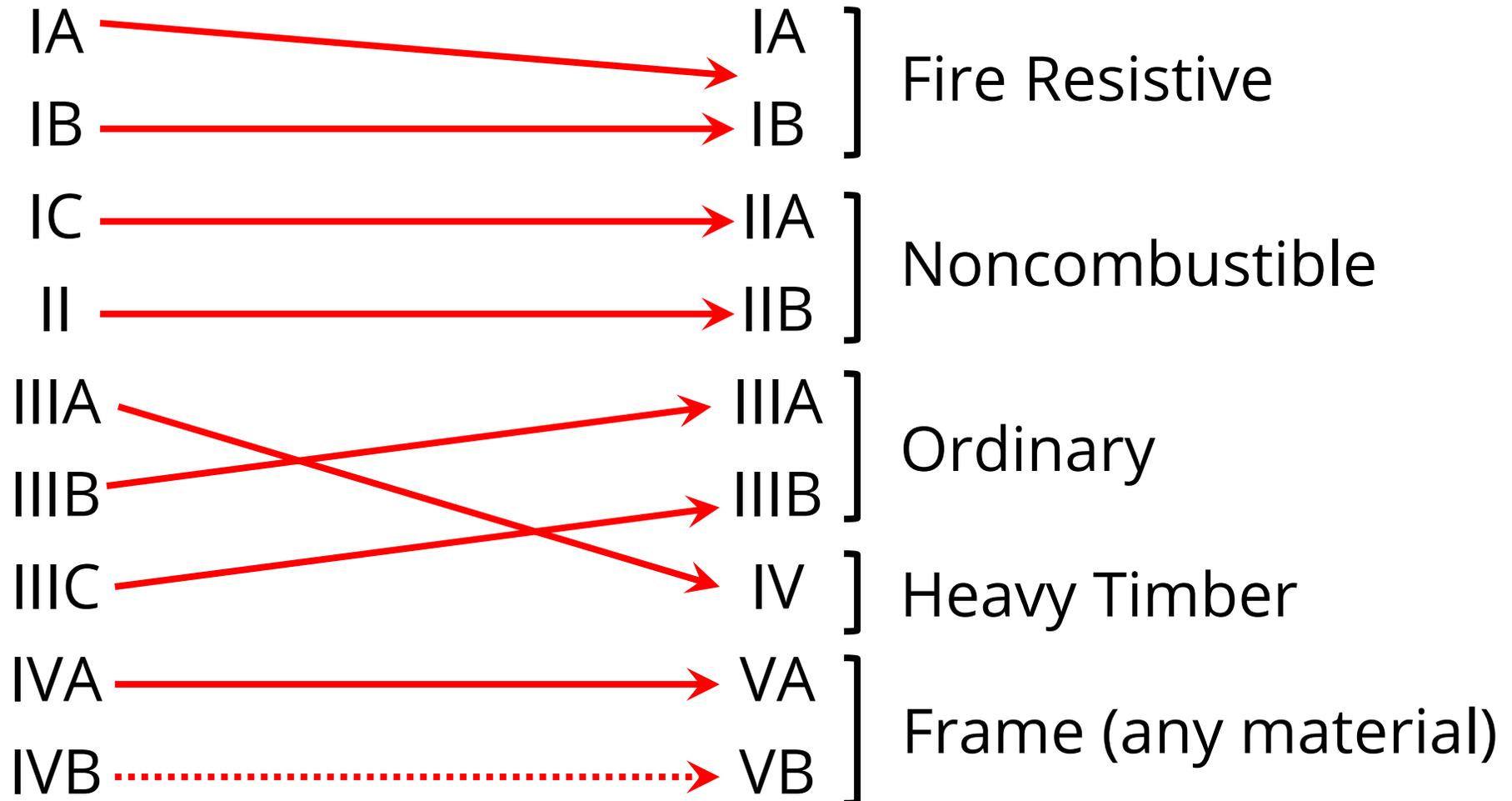
604. Combustible materials in Types III and IV (p. 238)

605. Basement construction (p. 238)

Conversion (approximate)

Current Code

New Code (IBC)



New from IBC – Construction Types

- 4-hour construction is reserved for fire walls and hazardous occupancies
- Exterior wall rating is based on fire separation distance (and construction type if load bearing)
- Clearer list of permitted combustible materials in non-combustible construction

Chicago-specific Highlights - Construction Types

- [Table 601 note h](#) allows 30-minute roof construction in residential buildings up to 4 stories ([p. 235](#))
- Table 602 modified for urban conditions
- Chicago does not recognize FRTW in exterior walls of Type III, IV construction
- Chicago will allow Type V closer than 3 feet to a lot line with FRTW per [Table 602 note j](#) ([p. 236](#))



**Fire and Smoke
Protection Features**

Navigating Chapter 7 – Fire Protection Features

701. General (p. 239)

703. Fire-resistance ratings and fire tests (p. 239)

704. Fire-resistance rating of structural members (p. 240)

705. Exterior walls (p. 240)

706-711. Specific types of assemblies (p. 248)

712-718. Openings, penetrations, concealed space (p. 250)

719-722. Specific materials, prescriptive assemblies (p.256)

New from IBC – Fire Protection Features

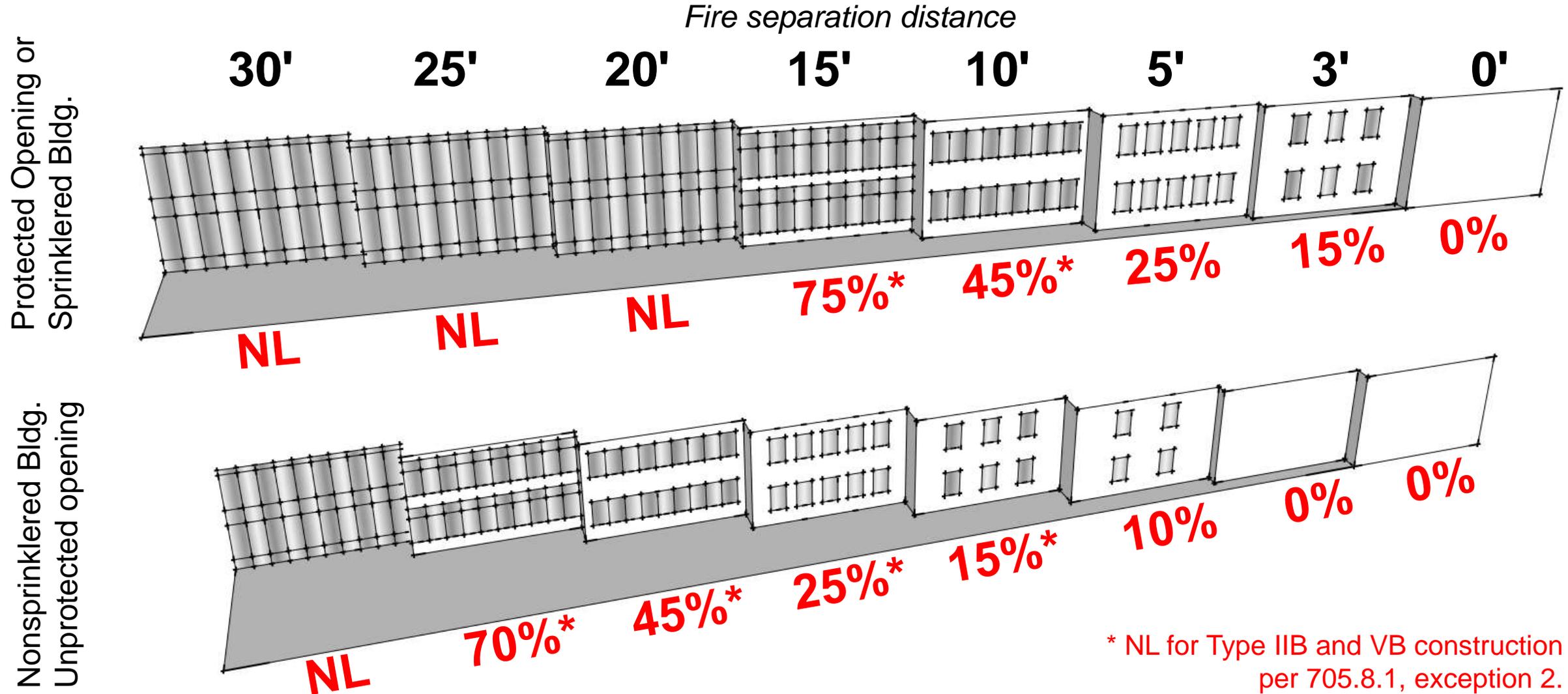
- IBC-based classification of fire-resistance rated assemblies
- Recognition of additional methods of establishing rating
- Opening protection based on *fire separation distance*
- Requirements for fire-resistant joints and penetrations
- IBC-based classification of protective doors/windows
- Prescriptive fire-resistance rated assemblies
- Calculated fire-resistance ratings where *approved*

Chicago-specific Highlights – Fire Protection Features

- Fire-resistance requirements for exterior wall projections (p. 240)
- Modified opening area limitations for low-rise residential buildings (p. 246)
- Fire walls require 4 hr. rating, but not IBC structural integrity requirement (p. 247)
- Shafts up to 9 ft² containing noncombustible materials (pipes, ducts, conduit) 1 hr, any height (p. 251)

Max. Area of Openings (p.245)

NOTE: Different rules for residential buildings up to 4 stories



* NL for Type IIB and VB construction per 705.8.1, exception 2.

ARCHITECTURE

08

Interior Finishes

Navigating Chapter 8 – Interior Finishes

803. Walls and ceiling finishes ([p. 258](#))

804. Interior floor finish ([p. 260](#))

805. Combustible materials in Types I and II ([p. 260](#))

806. Decorative materials and trim ([p. 260](#))

807. Insulation ([p. 261](#))

808. Acoustical ceiling systems ([p. 261](#))

Highlights - Interior Finishes

- Adopts standard classification / testing methods for interior finish materials
- Retains some stricter requirements for finish materials from current code, esp. in exit stairs and lobbies

**Using Chicago's New
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Fire Protection and Life Safety Systems

Navigating Chapter 9 – Fire Systems

901. General ([p. 262](#))

902. Fire pump room and riser room size ([p. 263](#))

903. Automatic sprinkler systems ([p. 263](#))

904. Alternative extinguishing systems ([p. 268](#))

905. Standpipe systems ([p. 269](#))

906. Portable fire extinguishers ([p. 271](#))

907. Fire alarm and detection systems ([p. 272](#))

Navigating Chapter 9 – Fire Systems (continued)

908. Emergency alarm systems (p. 279)

909. Smoke control systems (p. 279)

910. Smoke and heat removal (p. 280)

911. Fire command center (p. 281)

912. Fire department connections (p. 283)

913. Fire pumps (p. 284)

914. Emergency responder safety features (p. 284)

Navigating Chapter 9 – Fire Systems (continued)

915. Carbon monoxide detection ([p. 284](#))

916. Gas detection systems ([p. 285](#))

919. City fire alarm box ([p. 286](#))

New from IBC – Fire Systems

- Significantly expanded requirements for active fire protection systems: sprinklers, standpipes, fire alarms
 - Sprinklers required in residential buildings with 4+ units, eff. **Jan. 1, 2020** (but, 903.2.8 ex. 2 [p. 266](#))
 - Sprinklers required for assembly occupancies
 - Sprinklers required in all new buildings over **70** feet

Chicago-specific Highlights – Fire Systems

- Fire alarm, standpipe, command center requirements are hybridized with existing code to accommodate CFD operating procedures
- CFD to provide guidance on permitting of required alternative extinguishing systems before December
- Specialized requirements from current code retained: *exhibition areas, telecom. equip. areas*

Chicago-specific Highlights – Fire Systems (continued)

- Electrical code requirements for fire pumps relaxed, consistent with model codes
- Carbon monoxide detector requirements standardized with model code
- Smoke control systems for other than atriums optional, but if installed, must comply with Appendix S
- City fire alarm boxes req'd as in current code



10

Means of Egress

Navigating Chapter 10 – Means of Egress

1003. General means of egress ([p. 288](#))

1004. Occupant load ([p. 289](#))

1005. Means of egress sizing ([p. 292](#))

1006. Number of exits and exit access doorways ([p. 292](#))

1007. Exit and exit access doorway configuration ([p. 298](#))

1008. Means of egress illumination ([p. 299](#))

1009. Accessible means of egress ([p. 300](#))

Navigating Chapter 10 – Means of Egress (continued)

Egress features:

1010. Doors, gates and turnstiles ([p. 301](#))

1011. Stairways ([p. 305](#))

1012. Ramps ([p. 309](#))

1013. Exit signs ([p. 309](#))

1014. Handrails ([p. 311](#))

1015. Guards ([p. 311](#))

Navigating Chapter 10 – Means of Egress (continued)

Egress path components:

1016-1021. Exit access ([p. 314](#))

1022-1027. Exits ([p. 317](#))

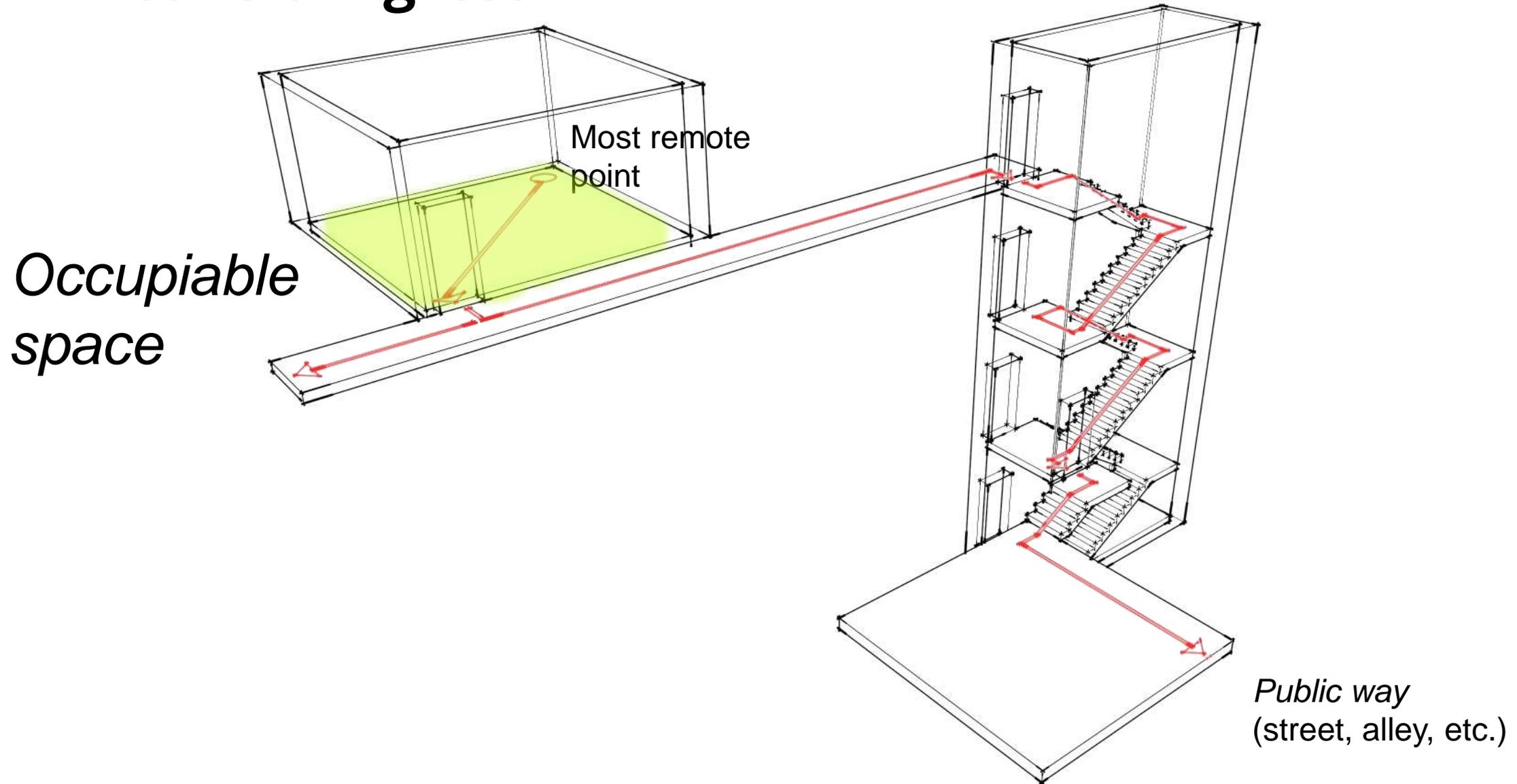
1028. Exit discharge ([p. 319](#))

1029. Assembly ([p. 320](#))

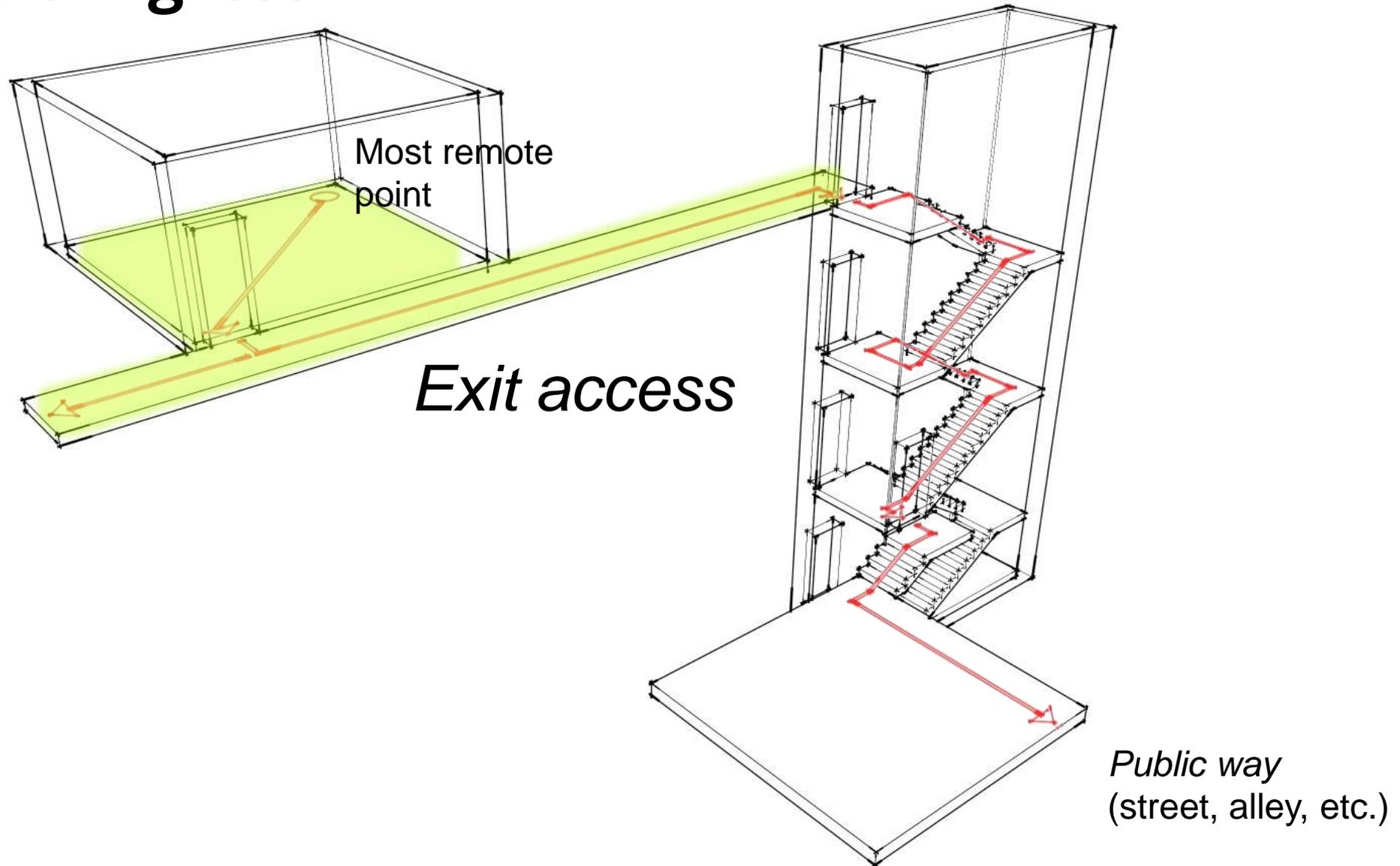
New from IBC – Means of Egress

- IBC-based egress sizing
- IBC-based egress terminology
- IBC-based egress separation (with Chicago exceptions)
- IBC-based clarifications for egress and emergency lighting
- Egress requirements consistent with ADA/IAC
- Reduced railing/guard requirements for small res.

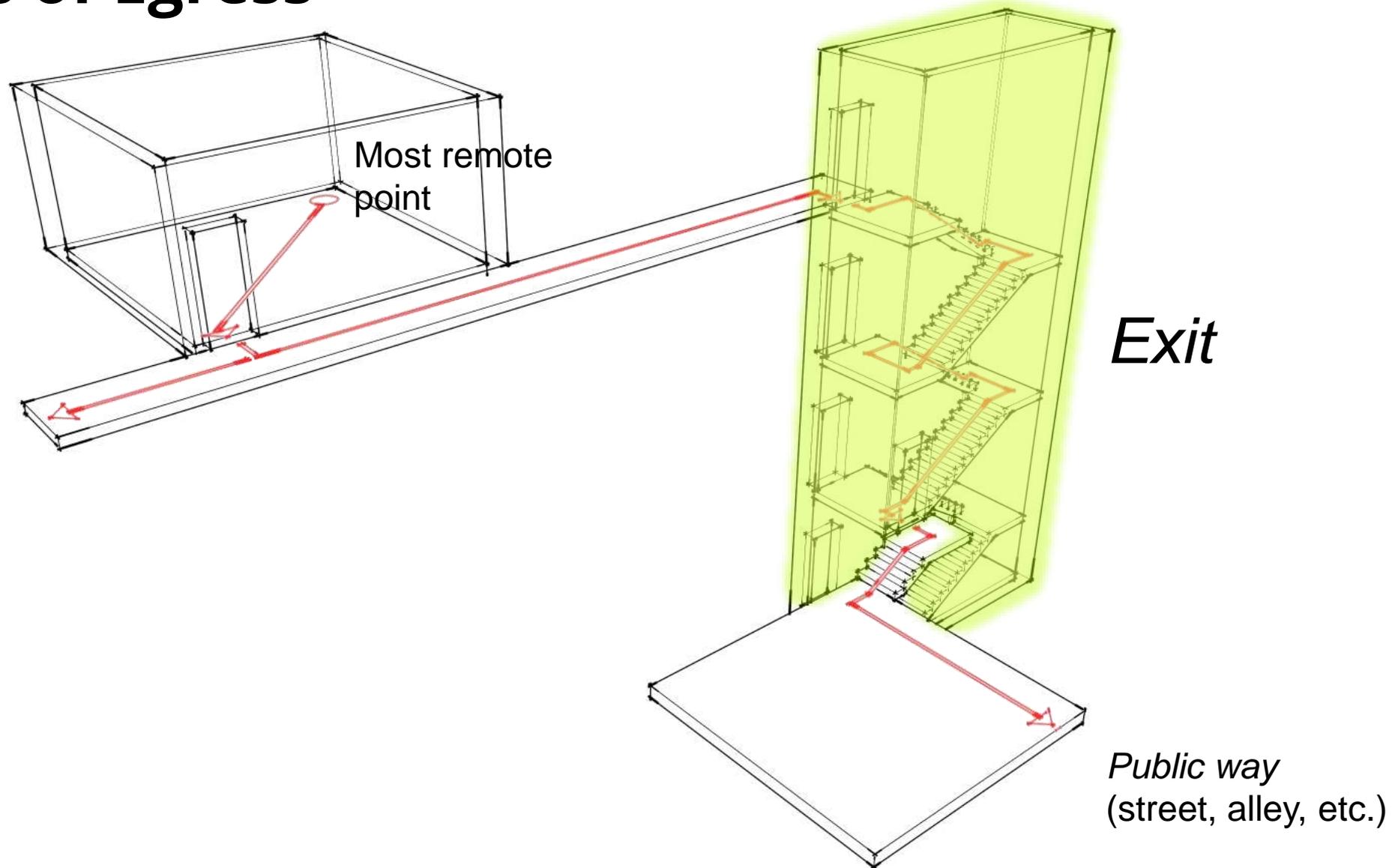
Means of Egress



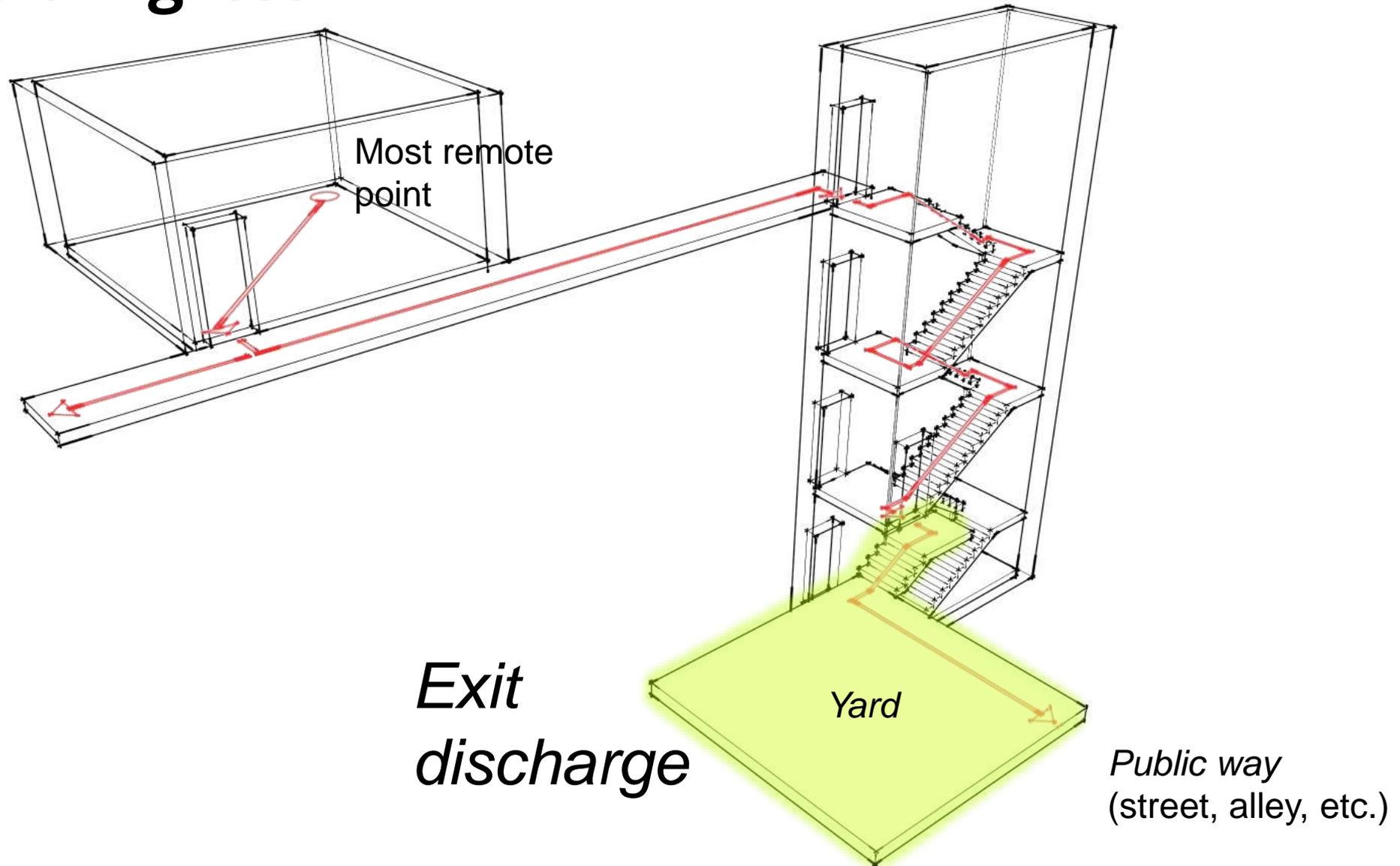
Means of Egress



Means of Egress

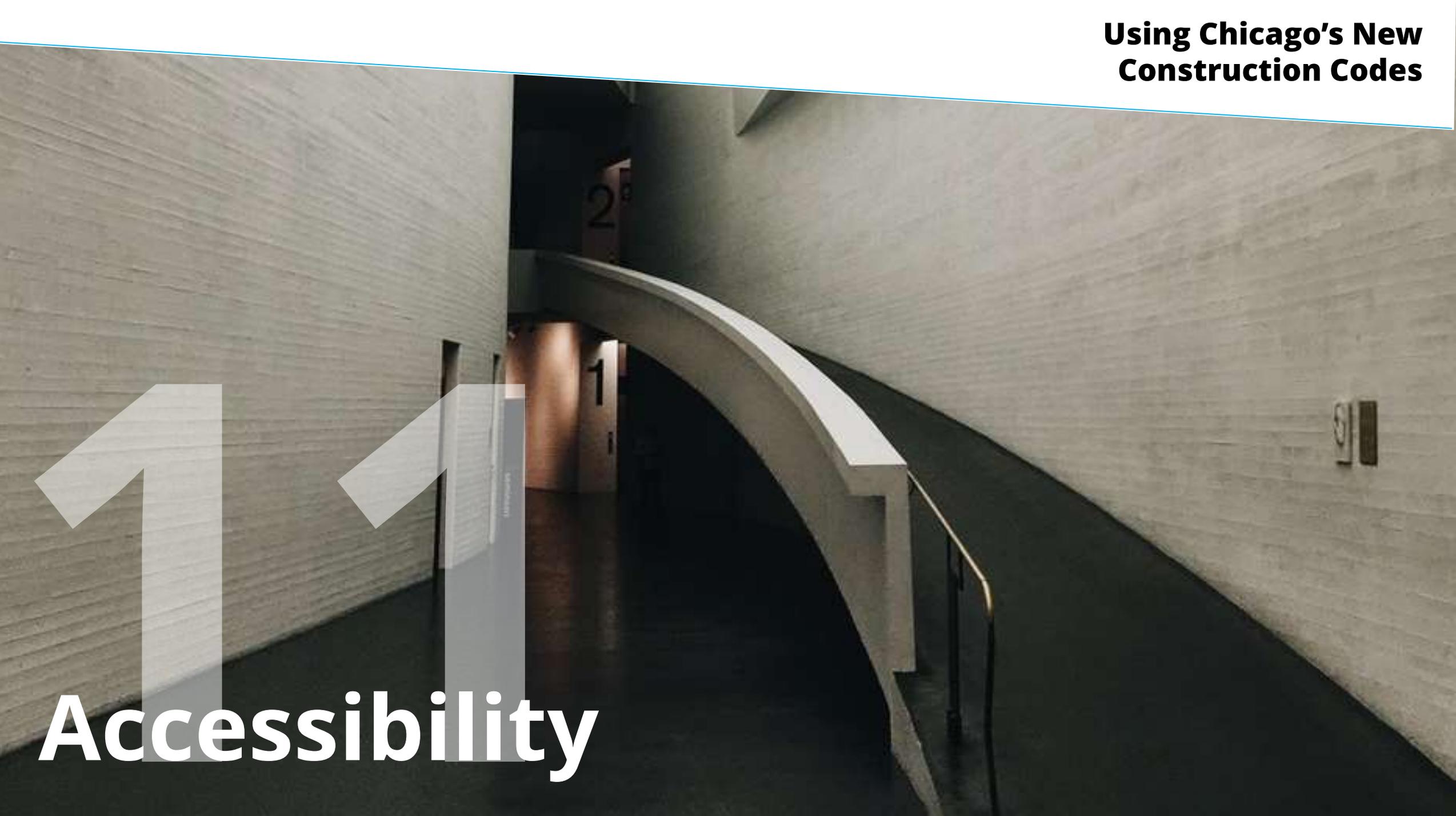


Means of Egress



Chicago-specific Highlights - Means of Egress

- Occupant load factors are hybrid of current code and IBC
- Door swing and other obstructions more restrictive
- Single-exit conditions based on current code, not IBC
- Exit sign requirements based on current code
- Does not adopt:
 - Glow-in-the-dark markings
 - Pressurized stairs
 - Third stair in high rises
 - Smoke-protected seating
 - Residential egress windows



1 Accessibility

Highlights - Accessibility

- Takes effect for all permit applications started on or after **December 1, 2019**
- Significant efforts made to align with ADA, IAC, Fair Housing
- Government-funded projects may be subject to additional MOPD regulations
- Updates to **2009** ANSI A117.1 as baseline
- Provides kitchen cabinet solution for private housing



12

Interior Environment

Navigating Chapter 12 – Interior Environment

1202. Ventilation (p. 344)

1203. Temperature control (p. 347)

1204. Lighting (p. 347)

1205. Yards and courts (p. 350)

1207. Interior space dimensions (p. 352)

1208. Access to unoccupied spaces (p. 354)

1209. Toilet and bathroom requirements (p. 354)

1210. Rodent protection (p. 354)

New from IBC – Interior Environment

- Provisions on *attic* and crawlspace ventilation
- Reduced (7'-0") ceiling height requirements within *dwelling units*
- Residential *lofts* (modified from *IRC* appendix)
- Toilet room requirements
 - Nonabsorbent surfaces
 - Urinal partitions

Chicago-specific Highlights - Interior Environment

- Modified provisions for borrowing natural light and ventilation (still some in Zoning Ordinance)
- Modified natural light and ventilation requirements for duplex-down units
- Modified provisions on yards and courts
- Provision for recognition of permanent easements
- Clearer rodent protection requirements
- Does not adopt IBC sound transmission requirements

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13
Energy Efficiency

Highlights - Energy Conservation

- Energy code requirements based on 2018 IECC take effect for permit applications started on or after **June 1, 2019.**
- Chicago solar reflectance “cool roof” requirements moved to Sec. 1515.
- For free online training, visit the Smart Energy Design Assistance Center: smartenergy.illinois.edu

**Using Chicago's New
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Exterior Walls

Navigating Chapter 14 – Exterior Walls

1402. Performance requirements ([p. 357](#))

1403. Materials ([p. 358](#))

1404. Installation of wall coverings ([p. 358](#))

1405. Combustible materials, exterior side ([p. 362](#))

1406. Metal composite materials ([p. 363](#))

1407. EIFS ([p. 364](#))

1408. High-pressure exterior grade laminates ([p. 364](#))

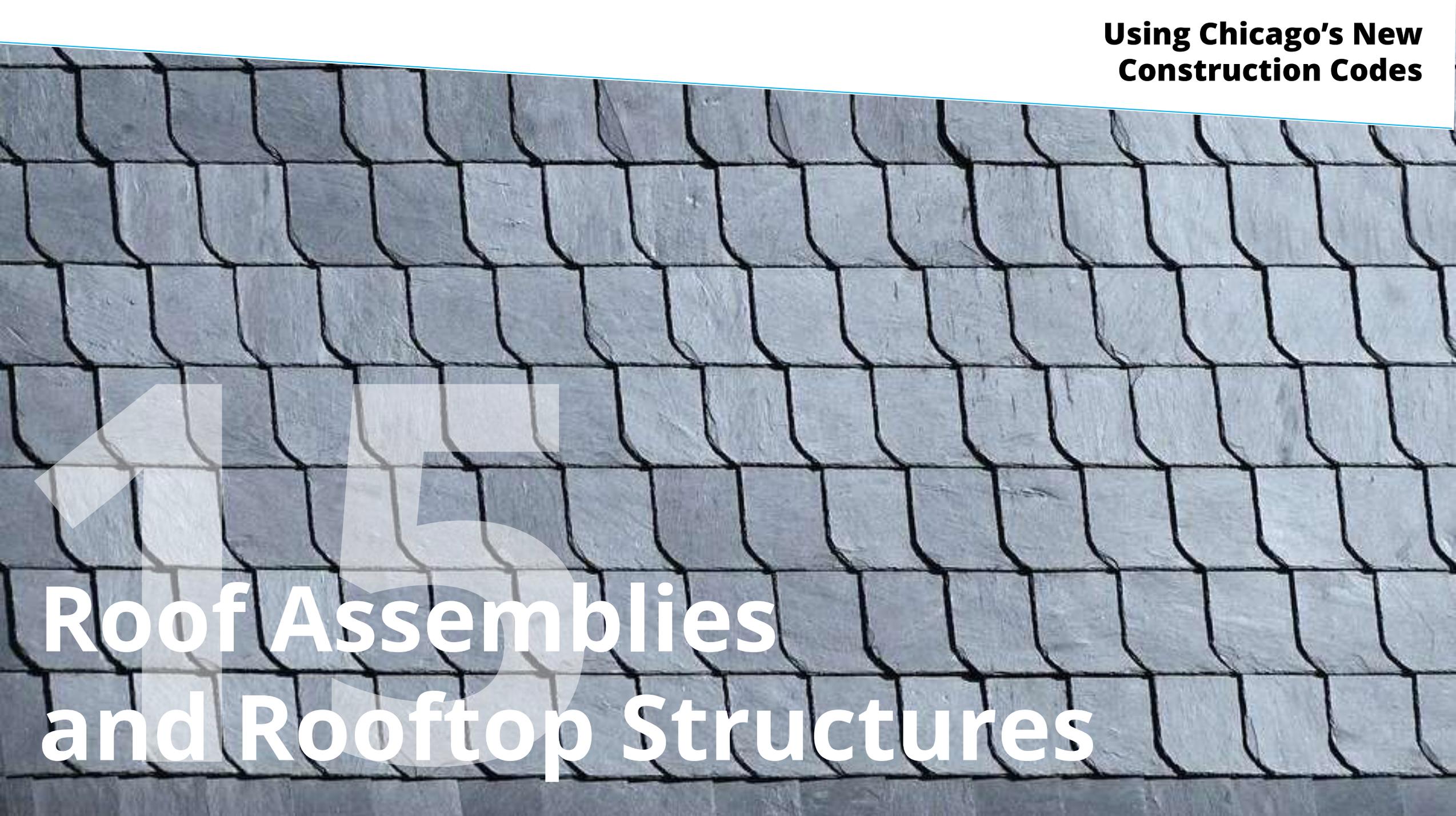
1409. Plastic composite decking ([p. 365](#))

New from IBC – Exterior Walls

- Specific requirements for a wide range of cladding materials
- Modified IBC-based provisions on combustible materials on exterior side of exterior walls, very similar to 2018 memo
- Standards and requirements consistent with readily-available manufacturer test data

Chicago-specific Highlights - Exterior Walls

- Some overly-prescriptive requirements from IBC deleted
- Provisions for combustible cladding do not include many IBC "exceptions"
- EIFS without drainage continues to be prohibited
- Provisions for plastic composite decking, but not recognized as noncombustible



Roof Assemblies and Rooftop Structures

Navigating Chapter 15 – Roofs and Rooftops

- 1502.** Roof drainage (p. 366)
- 1503.** Weather protection (p. 366)
- 1504.** Performance requirements (p. 367)
- 1505-1509.** Material-specific requirements (p. 368)
- 1510.** Unoccupied rooftop structures (p. 371)
- 1513.** Occupiable rooftops (p. 374)
- 1514.** Vegetative roofs, roof gardens (p. 377)
- 1515.** Solar reflectance (p. 378)

Note: Reroofing in Building Rehabilitation Code

New from IBC – Roofs and Rooftops

- Specific requirements for a wide range of roofing materials
- Adopts current classification system for *roof coverings* and *roof assemblies*
- Specific provisions for roof repairs and reroofing (in Title 14R – Building Rehabilitation Code)
- Requirements for vegetative roofs and roof gardens (adapted from *International Fire Code*) (p. 377)

Chicago-specific Highlights – Roofs and Rooftops

- Tailored provisions for unoccupied rooftop features (p. 371) and occupiable rooftop features (p. 374)
- Longstanding solar reflectance requirements relocated from energy code (p. 378)
- Roof drainage requirements will be evaluated in Phase 3



16 Structural Design

Navigating Chapter 16 – Structural Design

1601. General [\(p. 380\)](#)

1602. Notations [\(p. 380\)](#)

1603. Construction documents [\(p. 380\)](#)

1604. General design requirements [\(p. 381\)](#)

1605. Load combinations [\(p. 383\)](#)

1606. Dead loads [\(p. 383\)](#)

1607. Live loads [\(p. 383\)](#)

1608. Snow loads [\(p. 385\)](#)

Navigating Chapter 16 – Structural Design (continued)

1609. Wind loads (p. 386)

1610. Soil lateral loads (p. 389)

1611. Rain loads (p. 390)

1612. Flood design (p. 390) (**Phase 3**)

1613. Earthquake loads (p. 390)

1614. Atmospheric ice loads (p. 394)

1616. Structural integrity (p. 394)

New from IBC – Structural Design

- Update to use ASCE 7-16 as reference
 - Loads are expressed as ultimate loads instead of working loads
- Risk-based occupancy classification (p. 382)
- Reduction of design live load for some balconies and porches from 100psf to 60psf (p. 383)
- Seismic requirements

Chicago-specific Highlights - Structural Design

- Chicago code will not require use of maps to determine values – values have been provided
- Additional details have been provided for design of common conditions in live load table
- Wind forces for small, ordinary-risk buildings will be reduced approximately 20%
- Simplified wind force section added for Chicago (with limitations)

Seismic Design

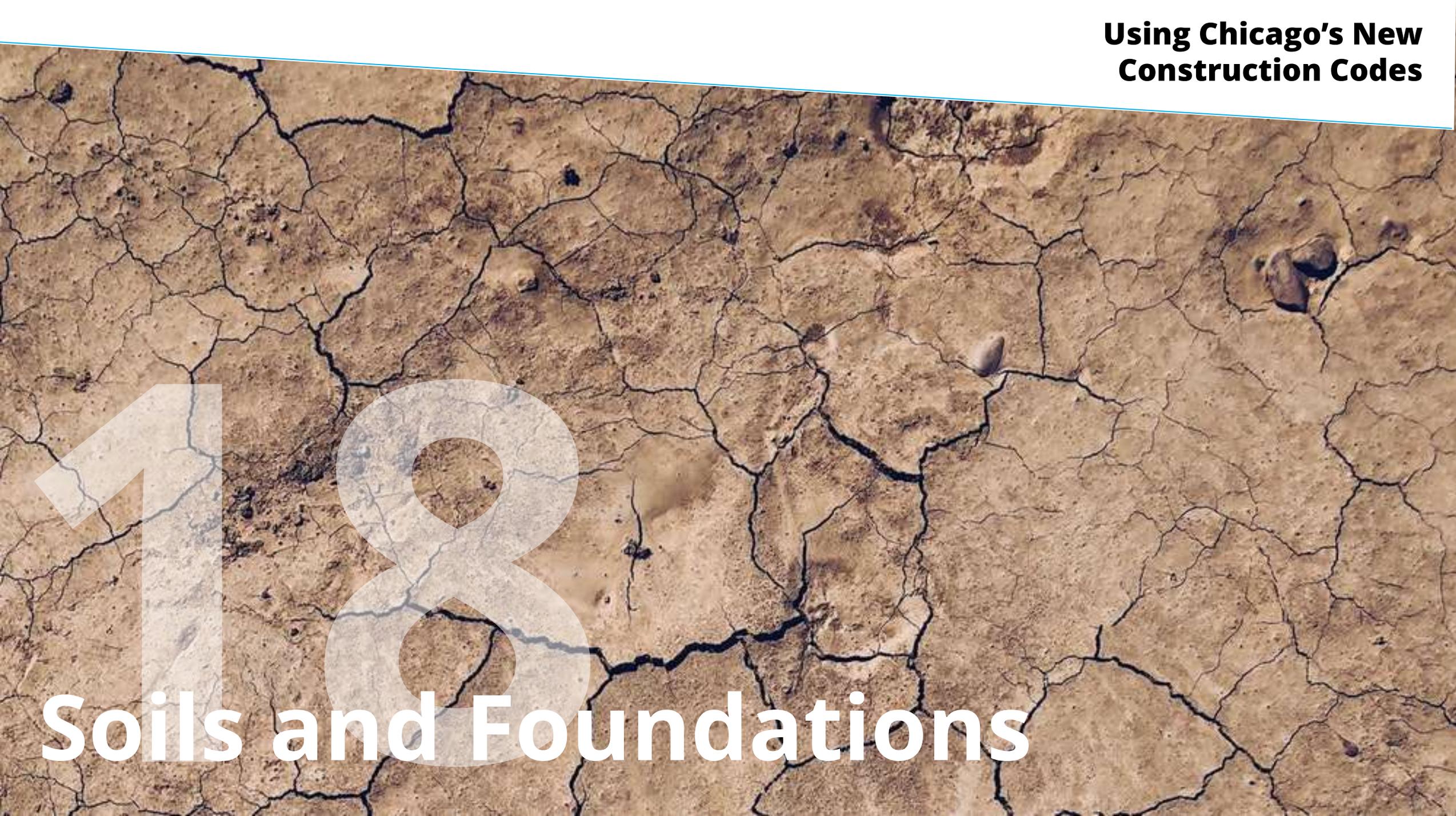
- Group R-3 and R-5 are exempt (p. 390)
- Prescriptive wood framing is exempt (p. 390)
- Non-occupied storage structures are exempt (p. 391)
- Ordinary-risk buildings up to 60 feet have minimal requirements (depending on structural system, up to 130 feet)
- Only high-risk buildings or tall buildings on bad soil have heightened seismic requirements (p. 392)



Special Inspections and Tests

Highlights - Special Inspections and Tests

- In order to accommodate wider range of materials allowed, special inspections required to supplement departmental inspections
- More guidance will be provided as these requirements phase in
- Many small projects with standard materials are exempt



18 Soils and Foundations

Navigating Chapter 18 – Soils and Foundations

1803. Geotechnical investigations (p. 409)

1804. Excavation, grading and fill (p. 412)

1805. Dampproofing and waterproofing (p. 412)

1806. Presumptive load bearing values of soils (p. 414)

1807. Foundation walls, etc. (p. 418)

1808. Foundations (p. 419)

1809. Shallow foundations (p. 420)

1810. Deep foundations (p. 421)

Highlights - Soils and Foundations

- More guidance on geotechnical and foundation design requirements
- Incorporates 2016 deep foundation memo
- Foundation drainage will be revisited in Phase 3

Geotechnical Investigations

- 3 exemptions from full investigation (p. 409)
 - Single-story storage structures up to 2,000 ft²
 - Alterations and additions with less than 5% load increase
 - Shallow excavation and use of conservative presumptive table
- Pre-permit exemption from investigation (p. 412)
 - Up to 4 stories
 - Covering up to 16,000 ft²
 - No excavation below 8 ft

19

Concrete

Highlights - Concrete

- Recognition of up-to-date standards for structural concrete applications
- Recognition of structural uses of shotcrete

**Using Chicago's New
Construction Codes**



Aluminium

Highlights - Aluminum

- Recognition for structural uses of aluminum
- Aluminum may or may not meet requirements for noncombustible material



Masonry

Highlights - Masonry

- Recognition of up-to-date standards for structural masonry applications
- Retains limitations on single-wythe masonry for residential buildings (p. 435)
- Provisions for masonry chimneys and fireplaces

Using Chicago's New Construction Codes



2

Steel

Highlights - Steel

- Recognition of latest standards for structural steel design
- Explicit provisions on use of cold-formed light-frame construction
 - Retains requirements for masonry cores in buildings over 55' (p. 441)
- Provisions on cast iron for existing conditions (p. 441)

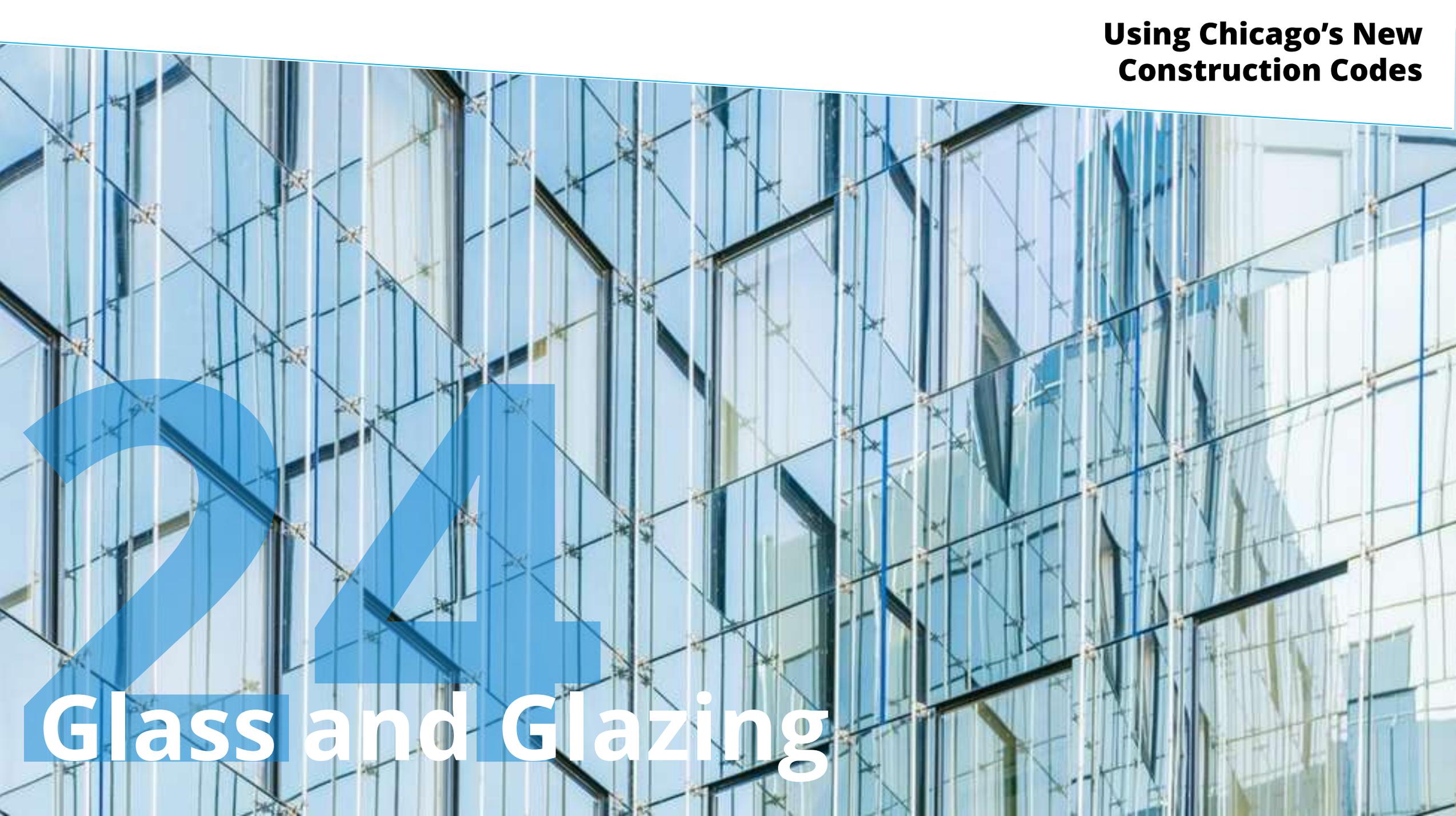
A photograph of a wooden truss roof structure under construction. The trusses are made of light-colored wood and are supported by a network of diagonal bracing. The roof is partially covered with plywood sheathing. The background shows a clear blue sky.

23

Wood

Highlights - Wood

- Recognition of newer wood based products
 - Use of cross-laminated timber (CLT) still must be *approved*
- Explicit recognition of prescriptive framing methods for light-frame wood construction as path to simplified structural design
- Up-to-date standards for Fire Retardant Treated Wood (FRTW) (limited for weather-exposed applications)



24

Glass and Glazing

Highlights - Glass and Glazing

- Recognizes structural uses of glass
- Updated requirements for safety glazing and glazing in hazardous locations
 - Additional limitations on use of wired glass
 - Recognition of newer safety glazing types
- Requirements for glass guards now in code

25

**Gypsum Board, Gypsum
Panel Products and Plaster**

Highlights - Gypsum and Plaster

- Up-to-date standards for plaster and gypsum products (current code references 1946 standard)
- Provisions for structural use of gypsum panel products
- Standards for interior and exterior plaster and stucco applications

26

Plastic

Highlights - Plastics

- Up-to-date standards for various plastic-containing products (interior and exterior)
 - Foam plastic insulation
 - Plastic trim and veneer
 - Light-transmitting plastics / plastic glazing
- Several provisions are more restrictive than IBC
- Additional limitations on exterior use within fire limits (Appendix D)

**Using Chicago's New
Construction Codes**



2
Electrical

Highlights - Electrical

- Distinction between emergency power (10 sec.) and standby power (60 sec.) loads
- Alignment of requirements for fire pump emergency power with model codes (high-rise and hospitals only)
- Provisions for energy storage (battery) systems in Chapter 14F-12

28 Mechanical Systems

Highlights - Mechanical Systems

- Mechanical Code will be considered in Phase 3
- Mechanical Code adjustments on case-by-case basis may be requested through ACAR or S&T process

Submit "Top 10" recommendations for Mechanical Code changes to DOBCommissioner@cityofchicago.org

**Using Chicago's New
Construction Codes**

2019

Plumbing Systems

Highlights - Plumbing Systems

- Plumbing Code will be considered in Phase 3
- Alternative plumbing materials pilot program for drain, waste and vent piping in buildings up to 4 stories continues through December 2019

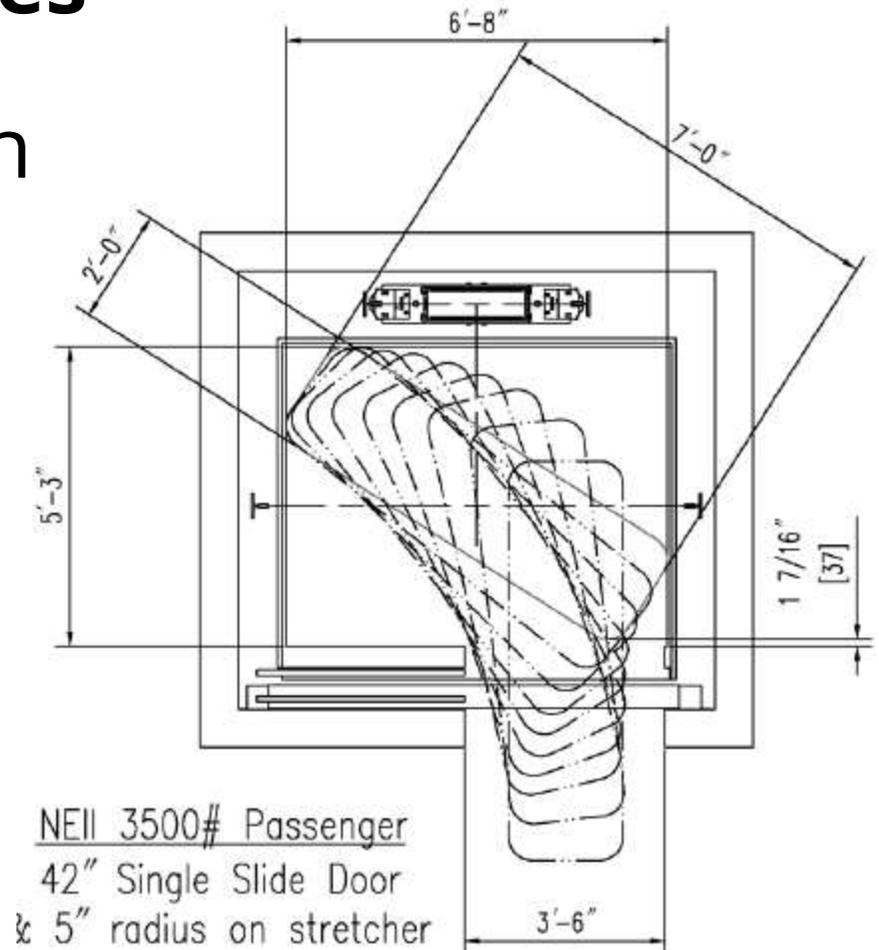
Submit "Top 10" recommendations for Plumbing Code changes to DOBCommissioner@cityofchicago.org



30 Conveyance Devices

New from IBC – Conveyance Devices

- In new buildings and additions with 6+ stories or 2+ basements, one elevator must accommodate stretcher
- Clarification about machine room ratings



Chicago-specific Highlights - Conveyance Devices

- Chicago has separate “Conveyance Device” Code (updated 2018)
- No requirement for elevator lobbies or elevator pressurization
- Fire service elevator requirements modified based on current requirements, not IBC

**Using Chicago's New
Construction Codes**



31 Special Construction

Navigating Chapter 31 – Special Construction

- 3102.** Membrane structures (p. 473)
- 3103.** Tents and temporary structures (p. 473)
- 3104.** Pedestrian walkways and tunnels (p. 476)
- 3105-3106.** Awnings, canopies, marquees (p. 477)
- 3108.** Telecom. and broadcast towers (p. 477)
- 3110.** Automatic vehicular gates (p. 478)
- 3111.** Solar energy systems (p. 478)
- 3112.** Greenhouses (p. 478)
- 3114.** Fences (p. 478)

Highlights - Special Construction

- IBC-based specific provisions for membrane structures, pedestrian walkways, solar installations, greenhouses
- Updated Chicago-specific provisions for tents and temporary buildings (p. 473)
- Updated Chicago-specific provisions for fences (p. 478)



**Encroachments
Into the Public Way**



Highlights - Encroachments into the Public Way

- Many aspects of public way use are also regulated by BACP and/or CDOT
- Maintains Chicago requirements for deep foundations and vaulted sidewalks (p. 480)
- New provision for seasonal weather-protection vestibules (p. 481)

A welder wearing a mask and gloves is working on a metal structure, creating a large amount of bright yellow sparks. A large, semi-transparent blue number '3' is overlaid on the left side of the image.

3 Work Site Safety and Operations

Highlights - Work Site Safety and Operations

- Adopts common-sense requirements for site operations to protect building occupants, neighbors and users of adjoining public way (p. 482)
- Centralizes existing site operation requirements in Chicago Building Code (excavation, fencing)
- Enforcement date may be delayed beyond December 1 to ensure effective training /education

TITLE

141R

Building Rehabilitation Code

Navigating Title 14R: Building Rehabilitation Code

Ch. 1. Scope and Purpose ([p. 612](#))

Ch. 2. Definitions ([p. 615](#))

Ch. 3. Provisions for all compliance methods ([p. 622](#))

Ch. 4. Repairs ([p. 635](#))

Ch. 5-13. Compliance methods

Ch. 14. Relocated or moved buildings ([p. 689](#))

Ch. 17, Resource A. Archaic materials (IEBC)

Provisions for All Compliance Methods – Rehab Code

302. General provisions (p. 622)

303-304. Structural (p. 623)

305. Accessibility (p. 624)

306. Reroofing (p. 628)

307. Fire escapes (p. 630)

308. Electrical (p. 631)

309. Residential occupancies (p. 632)

Repair – Rehab Code

The reconstruction, replacement or renewal of any part of an *existing building* for the purpose of its maintenance or to correct damage.

In general, *repairs* cannot make a building or condition less compliant, but are not required to make it more compliant either.

Exception 1: Retroactive requirements in Ch. 13-196 / Title 14X

Exception 2: The Illinois Accessibility Code may trigger certain upgrades for plumbing repairs

Exception 3: Use of hazardous materials (lead, asbestos)

Navigating Compliance Methods – Rehab Code

There are 3 paths for evaluating the compliance of *alterations, additions and change of occupancy*:

Ch. 5. Prescriptive compliance method ([p. 637](#))

Chs. 6-12. Work area compliance method ([p. 643](#))

Ch. 13. Performance compliance method ([p. 683](#))

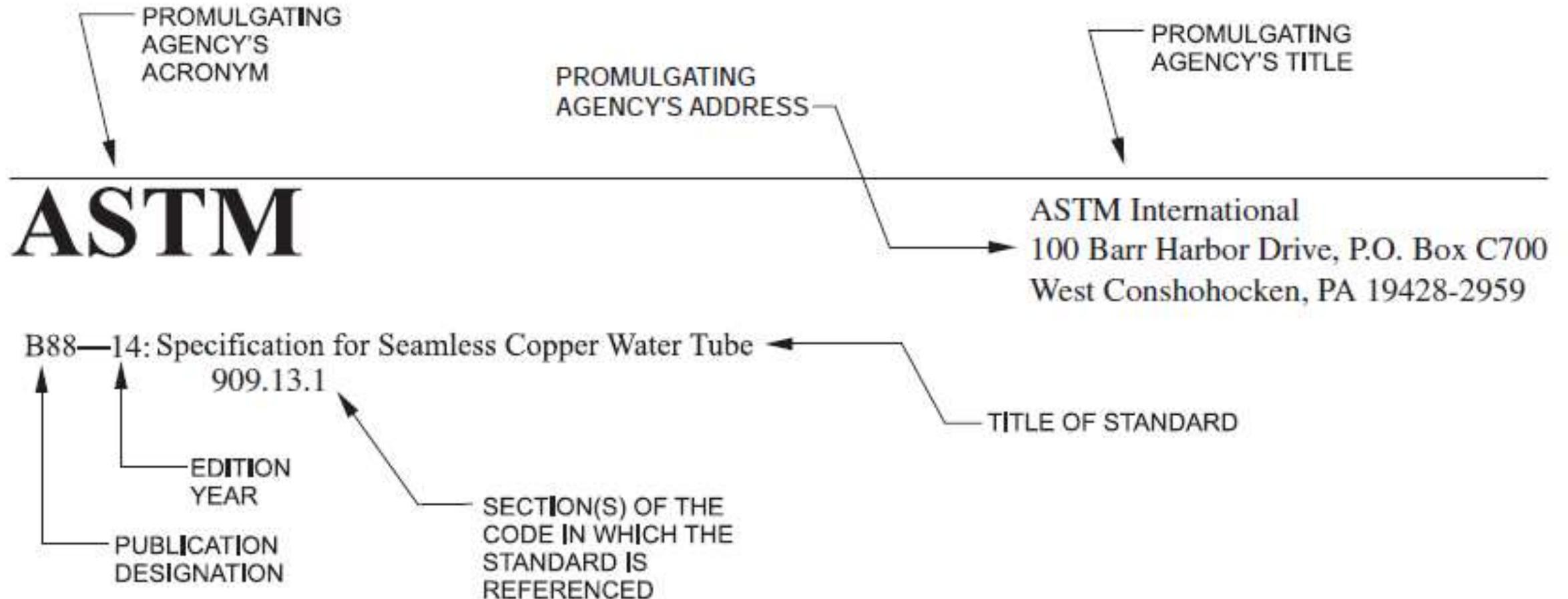
Chicago-specific Highlights - Rehab Code

- Provisions on roofing, fire escapes, electrical moved to Chapter 3
- Change of occupancy provisions substantially rewritten for Chicago
- Performance method not allowed for Group I-2 and will require special administrative process



315 Referenced Standards

Navigating Chapter 35 - Referenced Standards



Using Chicago's New Construction Codes



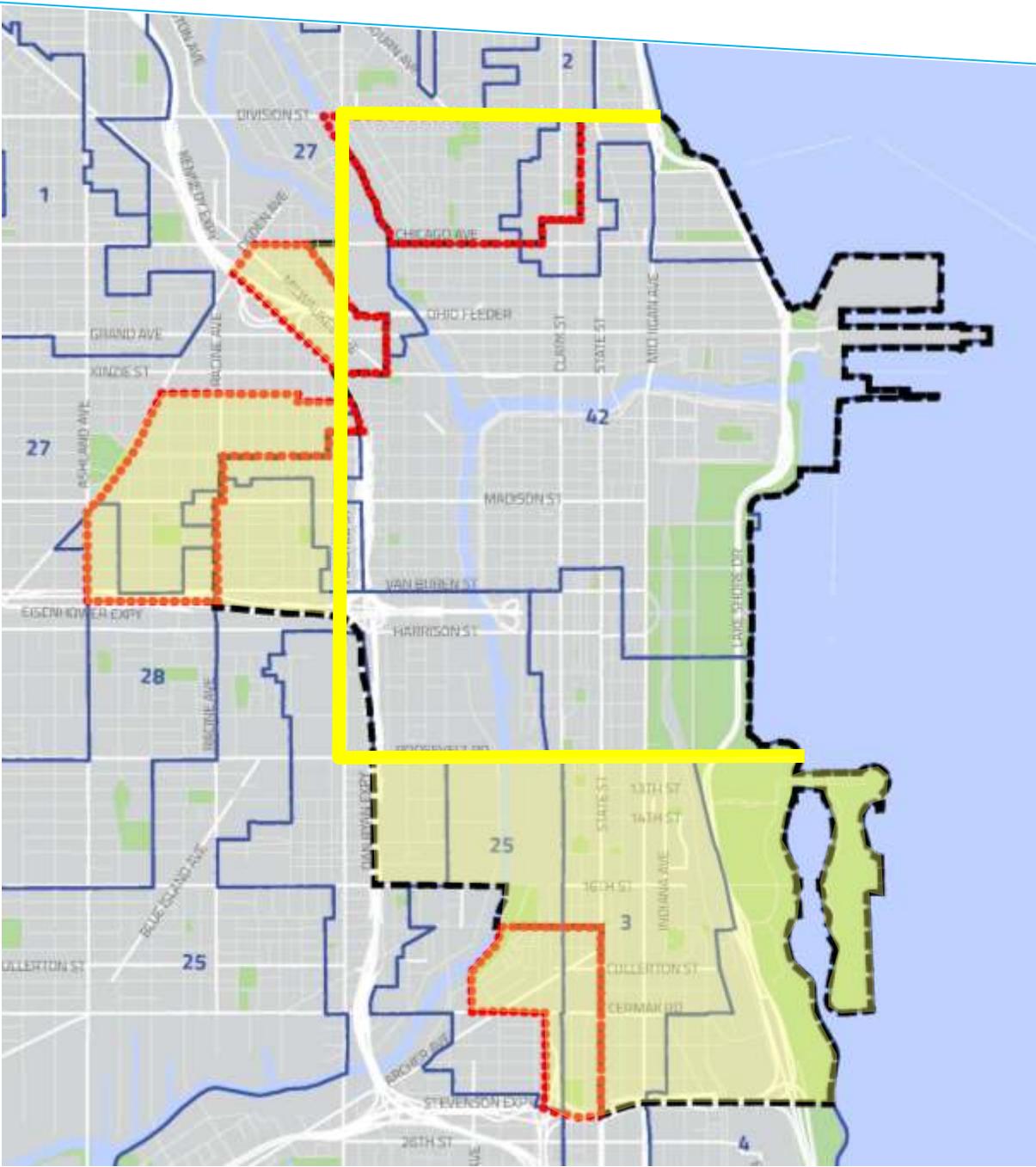
3
Appendices

Navigating Chapter 36 – Appendices

D. Fire Limits (p. 499)

E. Supplementary accessibility requirements (p. 502)

S. Optional smoke control systems (p. 503)



Appendix D - Fire Limits (expanded to include all downtown zoning districts)

- Type V construction limited
- Group H occupancies prohibited
- Enhanced requirements for exterior wall fire rating

TITLE

1414

Fire Prevention Code

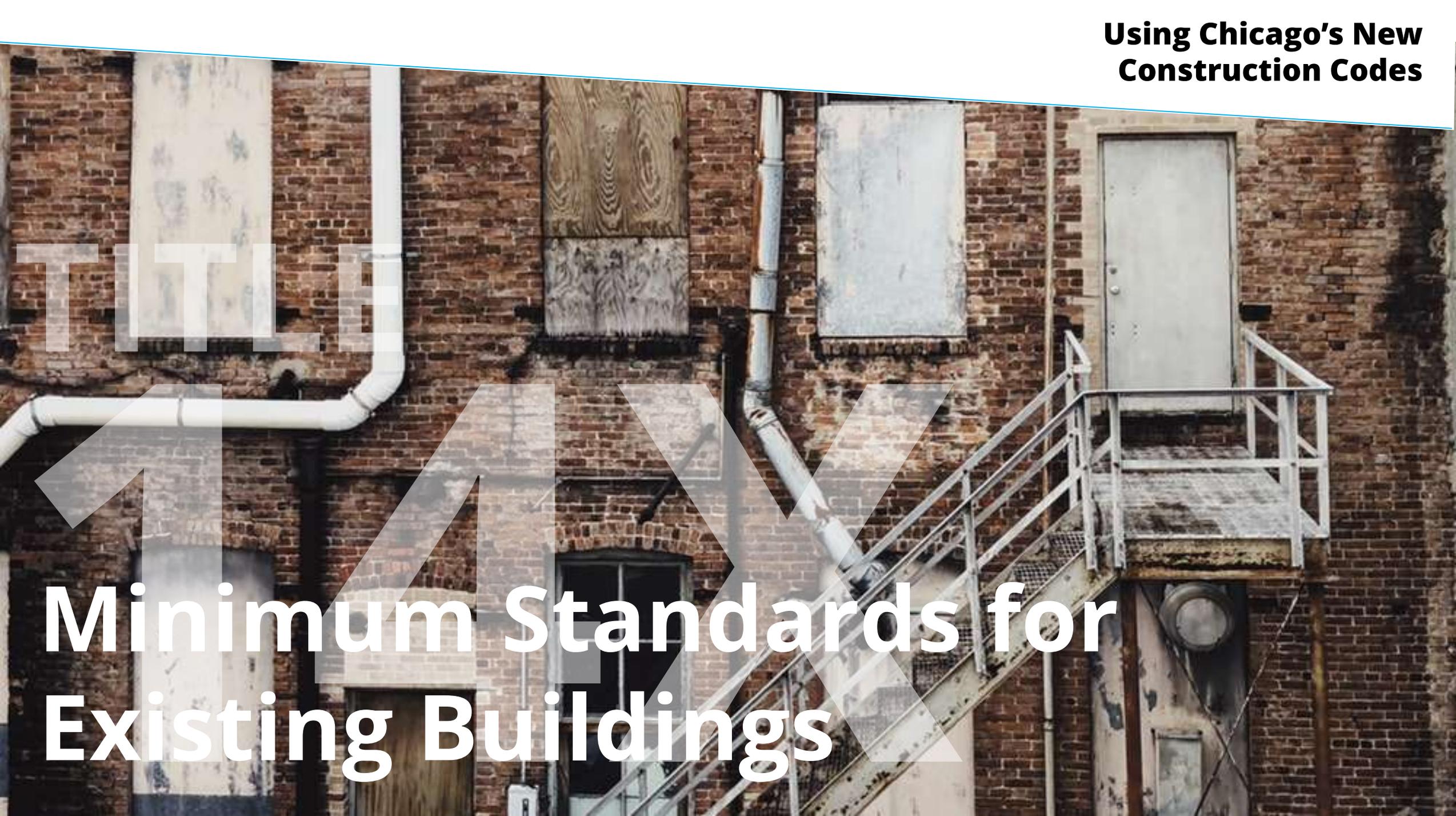
Navigating Title 14F – Fire Prevention Code

- Some IFC definitions adopted (Ch. 2 / [p.537](#))
- IFC Ch. 12 adopted (energy storage systems ([p.558](#)))
- Ch. 13: “Interim Fire Prevention Code”
 - CFD to consider hazardous/special occupancy provisions of IFC in phase 3
 - CFD may elect to enforce certain provisions of 2018 IFC before adoption ([p.561](#))
 - Until phase 3 is complete, certain chapters/sections of existing fire code remain in effect ([p.562](#))

**Using Chicago's New
Construction Codes**

TITLE

Minimum Standards for Existing Buildings



Minimum Standards (Property Maintenance)

- Reorganizes existing retroactive requirements
- Rewrites existing requirements using terminology consistent with model codes
- Eliminates redundant/unenforced provisions
- Provides clearer guidance for property owners
- Includes rental unit security standards (p. 716)
- Transition will be implemented in Spring 2020 (after heat season)

Thank You.



CITY OF CHICAGO

DEPARTMENT OF
BUILDINGS

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